

Amateur Radio

February 1997

Volume 65 No 2



Journal of the Wireless Institute of Australia



IN THIS ISSUE:

- * 144 MHz Meteor Scatter in the Southern Hemisphere
- * Review of Yaesu FT-10R 2 Metre Handheld FM Transceiver
- * Combined Speech and CW Filter Using a Single IC

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Cover

The South Australian South Coast Amateur Radio Club has operated a number of field day stations over the past several years. This is part of the antenna system used by the VK5TTY contest station in the 1993 Remembrance Day contest.

(Photo by Peter VK5TZX)

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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Editor's Comment

Analogies

What I am about to say may be considered heretical in some places, and I must state at the beginning that it is my own thought on the subject and does not reflect WIA Policy.

In last month's issue (January 1997, page 35) in the VK2 Divisional Notes, a spokesman for the Spectrum Management Agency was quoted. Defending "user pays" for use of the spectrum, he likened it to "a resource that has to be controlled and maintained just like a park or a waterway".

But is this really so? Parks are man-made, or at least developed or rendered accessible by human effort. Waterways (canals, rivers, etc) are even more so. Locks, bridges, wharves, and navigation aids all add man-made facilities or improvements. Consequently, it seems reasonable that there should be fees, tolls or charges of some kind imposed on the users.

Is there anything man-made about the spectrum? Certainly it can be "polluted" by human activity, analogous to waterways, but man has played no part in its evolution. Equipment to make use of the spectrum is certainly a human artefact, BUT NOT THE SPECTRUM ITSELF!

In a similar way, the atmosphere or the regular availability of sunlight are better examples of naturally-provided benefits over which we have no control and for which we make no charge. Although, once upon a time, the UK imposed a tax on the size of windows in buildings; and the taxpayers responded by bricking up the windows! We do pollute the atmosphere, and in turn this may reduce the quality and quantity of our sunlight. We are attempting, not very successfully, to control such pollution by licensing polluters and restricting their output.

Perhaps, if we must tax people for using naturally-provided resources, it should be only on the basis of how much they are capable of damaging those resources. But note well that so-called "electronic pollution" does no permanent damage; unlike sulphur dioxide in the air, CFCs in the ozone layer, or sewage in the rivers.

Could it be that resource rental tax on the spectrum is based on a bad analogy which, like all analogies, breaks down somewhere, but rather sooner than most? Would not the atmosphere be a better analogy, and one for which we make or pay no charge?

Bill Rice
VK3ABP

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of *Amateur Radio*. A photocopy is available on receipt of a stamped, self addressed envelope.

■ WIA News

Roger Harrison VK2ZRH, Federal Media Liaison Officer

WIA Submission Gains Permission to Use AX Prefix For Australia Day Weekend

For the first time, Australian amateurs were this year permitted to use the AX prefix in lieu of VK over 26-27 January, the Australia Day weekend. As advice of permission was only received on 10 January, it was too late to announce in January's issue, but the news was posted to the packet radio network and sent to all Divisions for their broadcasts, on the same day. Now the hubbub is over, the story can be told.

Following SMA rejection of a WIA request that Australian amateurs be permitted to use the AX prefix in lieu of VK for Australia Day last year, the Institute's SMA Liaison Team raised the issue at a meeting with the SMA last June. The SMA, while agreeing that Australia Day was significant, said because it was an annual event, it did not warrant the use of special event call signs. The SMA asked the WIA to compile a list of special events that were regarded as justifying the issue of special call signs as this would help the SMA and the WIA to come to some agreement on the issue.

In response, the SMA Liaison Team spent some considerable time and effort researching the field of special events and the criteria for justification of the use of special call signs to celebrate such events. Needless to say, it's a vast field. Last year, NSW Division Special Projects Officer, Stephen Pall VK2PS, provided WIA Federal with a very useful submission on special event call signs used in recent years in Australia and around the world.

In regard to the significance of

Australia Day as a "special event" warranting the use of the AX prefix, material from the National Australia Day Council was sought and, as a result, the Department of Immigration. Why the Department of Immigration? All is revealed, shortly.

In December, the WIA sent a two-page submission to the SMA, incorporating the following arguments.

The SMA's Regulatory Assignment and Licensing Instruction (RALI) document, AM2, provides a guideline on the use of the AX prefix as follows: *This prefix is only available for occasions of special national or international significance. . . Occasions warranting the use of the "AX" prefix will be determined by the SMA in consultation with the WIA.*

The submission argued that Australia Day is such an occasion because, firstly, it commemorates the arrival of the "First Fleet" on 26 January 1788, which founded the first British colony on the continent. Secondly, the celebration of Australia Day has been given significant importance and effect from the establishment, and activities, of the National Australia Day Council (NADC) and the eight State and Territory Australia Day Councils (Committee, in Victoria's case).

The National Australia Day Council says: *The National Australia Day Council leads a network of eight State and*

Territory Australia Day Councils or Committees, and hundreds of local committees organised around Local Government Areas across the country.

The National Australia Day Council's charter is a commitment to the development of national pride and identity and recognition of achievement. The network of Australia Day Committees which put together Australia Day celebrations brings out more Australians to organised activities and major events on one day than any other event bar a national election.

The last statement was particularly highlighted to emphasise the "special national significance" of Australia Day.

The Board of Directors of the National Australia Day Council comprises 14 Australians of diverse backgrounds, headed until late December by Chairman, Phillip Adams, the prominent writer, film-maker and broadcaster. The WIA submission noted the following quote from the Chairman's Report in the NADC's 1996 Annual Report, which further highlighted the scope of Australia Day as being of "special national significance": *About six million people were involved in Australia Day - from concerts, picnics, citizenship ceremonies and sports events to town meetings and discussions and family occasions. The announcement of Australian, Young Australian, Community and Australian Achievers of the Year, as well as awards for achievement in over six hundred communities across Australia, were for many a feature of the day.*

As well as celebration, Australia Day is also a time of reflection. It is a good time for all of us to think about the place we call "our country" and to consider where we want to go in the future and what we want to be.

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In addition, the WIA submission noted that Australia Day citizenship ceremonies have special national significance for migrants who formally take up citizenship on the day. The submission pointed out that Australia's origins are essentially that of a migrant nation, from the First Fleet to the present era. Today, more than one in four residents emigrated here in the 50 years since 1946. Australia Day citizenship ceremonies thus give particular focus to the importance of the day, the submission argued.

While the WIA's submission requested permission for use of the AX prefix over the three days of the Australia Day weekend because principal Australia Day events span the three days, the SMA

granted permission for 26-27 January only, during local time in each State or Territory. While Monday, 27 January was a holiday in most states, the Victorian Government has not decreed it one.

While the WIA anticipates that permission to use the AX prefix on the Australia Day weekend will be an annual event, formal advice had not been received by this issue's deadline.

The submission was researched and written by SMA Liaison Team member, Roger Harrison VK2ZRH, with advice from the other team members, Federal President Neil Penfold VK6NE and David Wardlaw VK3ADW.

Further submissions on the whole field of special event call sign usage are under development.

kHz band is allocated worldwide to the Amateur and Amateur-satellite services. From 6765-7000 kHz, the worldwide allocations are for fixed (primary) and mobile (secondary) services.

10,100-10,350 kHz. The Amateur Service requirement for the 10,100-10,350 kHz band is for a new worldwide allocation where the Amateur Service is primary. Internationally, this band is allocated on a primary basis for the fixed service, to the Amateur Service on a secondary basis at 10,100-10,150 kHz, and to the mobile service on a secondary basis at 10,150-10,300 kHz. The 10,100-10,350 kHz band in the United States has two allocations: the 10100-10150 kHz band is allocated exclusively for the Amateur Service and the 10150-10350 band is allocated for the fixed (primary) and mobile (secondary) services. The 10,150-10,300 kHz band is such a large portion of spectrum that the Amateur Service could possibly share this band in order to satisfy another radio service's additional spectrum requirements.

14,350-14,400 kHz. In this band, the Amateur Service requirement is for 50 kHz of primary, exclusive worldwide amateur allocation. Worldwide, this band is allocated for the fixed and mobile services.

18,168-18,318 kHz. The Amateur Service requirement for expansion of the 18,068-18,168 kHz amateur band by 150 kHz appears feasible into the next higher band. This adjacent higher band is the 18,168-18,780 kHz band that is allocated in the United States and Regions 1, 2, and 3 for the fixed service as primary and for the mobile service on a secondary basis.

24,740-24,890 kHz. To satisfy the 150 kHz additional requirement for the 24,890-24,990 kHz amateur band, expansion would have to be into the fixed and mobile allocated band below the amateur band. The band above it is allocated to the standard frequency and time signal service.

29,700-30,000 kHz. The amateur service requirement is for re-allocation of the 29,700-30,000 kHz band for the Amateur-satellite service (space-to-Earth). The Republic of South Africa has also proposed to re-allocate this band nationally for this purpose. Presently, this band in the United States is allocated exclusively for non-government land

US Agency Recommends More Amateur Band Space on HF

The US National Telecommunications and Information Administration (NTIA) has issued a report on spectrum planning options for 3-30 MHz which cites a number of amateur band allocations suited to expansion on a world-wide basis, as well as two new band allocations. The NTIA is a branch of the Department of Commerce responsible for developing telecommunications policy and advising the American President on telecommunications matters.

The report, titled *High Frequency (3-30 MHz) Spectrum Planning Options*, released mid-December, noted the Amateur Service's requirements in regard to HF spectrum, summarised as follows:

3500-3800 kHz. The Amateur Service indicated a 300 kHz requirement of a common, worldwide exclusive amateur allocation in the 3500-4000 kHz band. In the United States the 3500-4000 kHz band is allocated for the amateur service; however, in other regions of the world,

the amateur service shares portions of this band with fixed and mobile services. The 3500-3800 kHz band is a good candidate for a common, worldwide exclusive amateur allocation at the 3.5 MHz band.

4945-4995 kHz. A new Amateur Service requirement for 50 kHz of shared use around 5000 kHz appears possible at 4945-4995 kHz. This band is allocated to the fixed and mobile services. *[Not suggested for world-wide allocation - VK2ZRH.]*

6900-7200 kHz. The amateurs' requirement for a 300 kHz band aligned worldwide at the 6900-7200 kHz band needs to be addressed at US preparations for future WRCs. This requirement is to reduce inter-regional sharing and interference from HF broadcasting in the 7100-7300 kHz band; however, the 7100-7300 kHz band is presently allocated in the United States and in Region 2 to the Amateur Service. In Regions 1 and 3, this band is allocated to the broadcasting service. The 7000-7100

mobile service use at 29,700-29,800 kHz and for the fixed service at the 29,800-29,890 kHz and 29,910-30,000 kHz bands. [In Australia, 29,7000-30,005 kHz is allocated to the fixed and mobile service assigned on a primary basis, with radiolocation secondary, while 29,720-30,000 kHz is allocated to Class Licensed model radio control - VK2ZRH.]

The various requirements were determined from a previous NTIA study carried out in 1995. This latest NTIA report said that the "alignment of the amateur bands at 3.5 and 7 MHz worldwide will require the inclusion of these proposals in US preparations for future WRCs" (World Radio Conferences).

Another Year's Reprieve for Ch 35 ATV

Amateur television repeater systems on 575-582 MHz around Australia have been granted another year's extension to operate by the Australian Broadcasting Authority (ABA).

The "drop-through", as the ABA refer to it, has been granted for ATV systems at Black Hill in the ACT, Lane Cove, Oakdale and Springwood in NSW, Redbank Plains and Spring Hill in Queensland, Illawarra Hill and O'Halloran Hill in South Australia, Lyndhurst and Olinda in Victoria, and Carine in West Australia.

The Spectrum Management Agency

The report also noted that the requested upgraded allocation at 3500-3800 kHz was "a good candidate for a common world-wide exclusive amateur allocation at the 3.5 MHz band." In addition, the report said that the allocation requested at 6900-7200 kHz would serve to "reduce inter-regional sharing and interference from HF broadcasting in the 7100-7300 kHz band."

The WIA's ITU Conference and Study Group Co-ordinator, David Wardlaw VK3ADW, and the SMA Liaison Team are studying the NTIA report. For those with Internet access, a copy can be found at www.ntia.doc.gov/osmhome/reports/hfspo/contents.html.

(SMA) advised the WIA late last year that the ABA had advised the current drop-through period had been extended to 31 December 1997. The WIA asked the SMA about possible extension of the drop-through period at the WIA-SMA Liaison meeting last June.

The 50 centimetre band was formally withdrawn from Amateur use in 1989 (it was previously a "temporary" allocation until required for broadcasting). ATV use of Channel 35 has proved a useful "bridge" between the amateur radio community and the public over recent years.

VK6RBP HF Beacon Arrives

The five-band HF beacon, which will be the Australian leg of the 18-station International Beacon Project, arrived in Australia on 10 January. Providing it cleared Customs OK, the WIA Western Australian Division hoped to have it on the air in mid-January.

The beacons transmit on five bands in sequence, ten seconds on each band, over a 50-second period. The frequencies are 14.100, 18.110, 21.150, 24.930 and 28.200 MHz. See January WIA News, page 4.



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Rumours of Class Licence for Amateurs Scotched

Persistent rumours over recent months that amateurs were to be shortly transferred from the present Apparatus Licence system and put under a Class Licence by the Spectrum Management Agency have no foundation, according to advice received from the SMA.

A number of amateurs reported being told by staff in their local SMA Area Office that they should not bother paying for a multi-year licence because amateurs would soon be Class licensed. To ascertain the facts, WIA Federal President Neil Penfold VK6NE, contacted the SMA in Canberra.

The facts are: As part of its program of improving spectrum management processes, the SMA is reviewing all non-assigned services, of which there are ten – including the Amateur Service – to see whether sound spectrum management necessitates the issue of individual licences. Non-assigned services do not have an individual frequency assignment allocated by the SMA, but instead share a pre-set spectrum allocation. Apart from the Amateur Service, non-assigned services include some aeronautical services, outside broadcasting networks, maritime and scientific services. Each non-assigned licence type is being individually reviewed.

There is no predisposition to make any particular change to the Amateur Service, the SMA said. The review will incorporate appropriate consultation with the WIA and the Amateur community and will include consideration of the proposals that the WIA will shortly be putting before the Government, they said.

The WIA's position is that, while Class Licensing notionally offers a "fee-free" licence, radio amateurs individually and the Amateur Radio Service in Australia, stand to lose a great many advantages which are currently enjoyed. Class Licences are not issued to individuals. One of the fundamental strengths and

advantages of the Amateur Radio Service is that each amateur operator must be qualified, and is individually licensed by his country's administration. Each amateur and each amateur station is known to the administration. That is the way it is around the world.

Individual licensing is one of the cornerstones of how the Amateur Radio Service gained and maintains its recognition by the ITU and representation at international radiocommunications planning conferences. Without individual licences, the Australian Amateur Radio Service would likely not be recognised by the International Amateur Radio Union and we may lose representation at the international level. The issue and use of amateur call signs would be thrown into question.

From their inception, Class Licences have only been issued covering the use of type-approved equipment meeting prescribed standards. Class Licensing of amateur radio would mean every piece of equipment would have to meet those standards – from microphones to packet radio TNCs. That means antennas, too. Australian amateurs would lose the

ability to construct any item of their own equipment.

Without individual licences accredited by an agency of the Australian Government, the ability to operate your own amateur station in other countries, under reciprocal licensing agreements or through direct application to the administration, would be lost. Your status as an amateur radio operator would not be recognised.

Under Class Licensing the ability to recognise and act against amateur-band pirates would be seriously compromised.

There is very real likelihood that the Amateur Service in Australia would suffer from being identified with Class Licensed operations of low specification such as that on the industrial, scientific and medical equipment (ISM) bands, or the "anything goes" CB service.

"Without a fundamental and far-reaching rewrite of the definition and operation of Class Licensing as presently defined in the Radiocommunications Act, the Amateur Radio Service in Australia would be disadvantaged and altogether badly served by coming under a Class Licence," said WIA Federal President, Neil Penfold VK6NE.

As previously announced in *WIA News*, the WIA is to present its completed submission on Amateur Radio Service licensing to the Minister for Communications and the Arts, Senator Richard Alston, on 12 February.

Kenya Institutes Novice Licence Grade

The East African country, Kenya, introduced a Novice Licence grade last year, the Kenya Posts and Telecommunications granting licensees access to sub-bands on 80, 40, 15, 10 metres and all bands 2 m and above. Holders of the Kenya Novice Licence are permitted to operate on these bands using the following modes:

80 m 3500-3600 kHz CW only; 3600-3700 kHz CW and SSB; **40 m** 7000-7100 kHz CW and SSB; **15 m** 21,090-21,200 kHz CW only; **10 m** 28,100-28,400 kHz CW and SSB; **2 m & above** all modes, as for "Full" Licence holders.

Power limits for Novices are not known. (*IARU Region 1 News*).

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WIA News

IARU Continues to Grow

Membership of the International Amateur Radio Union continues to grow, with national amateur societies from five countries being admitted to membership during 1996.

The new-member societies were from Mali, Tanzania and Uganda in Africa, Moldova in eastern Europe, between Romania and the Ukraine, and Tajikistan between the western border of the People's Republic of China and the north-eastern border of Afghanistan, north of Pakistan. All are located in ITU Region 1.

There are now 151 separate countries and territories represented in the IARU. Created in Paris, France, the International Amateur Radio Union has been the watchdog and spokesman for the world Amateur Radio community since 1925.

The IARU Constitution organises the Union into three regional organisations that correspond to the three administrative regions of the International Telecommunication Union (ITU). Region 1 covers Europe, Russia, Africa and the Middle East, Region 2 covers the Americas, and Region 3 - Asia, India, Australasia and the western Pacific nations. The WIA is a founder member of the Region 3 IARU organisation. David Wardlaw VK3ADW is the WIA's IARU Liaison Officer. Michael Owen VK3KI is Vice President of the IARU.

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■ Propagation

144 MHz Meteor Scatter in the Southern Hemisphere

Michael J Farrell VK2FLR gives an in-depth explanation of two metre meteor scatter communication as applicable to Australia.*

A major problem for meteor scatter activity on Australian VHF bands is the reliance on meteor shower data published for northern hemisphere operators. Revised meteor data for mid-latitude southern hemisphere stations presents a totally different picture than is obvious from the usual references in the amateur literature from North America and Europe.

Meteor scatter is an under-utilised propagation mode on the Australian VHF scene. The most common DX modes on two metres in this country would be aircraft reflection, tropospheric scatter/bending and ducting, sporadic E and EME, in that order. Two metre meteor scatter is far more accessible to the average two metre station than

moonbounce, which at best is marginal with VK power limits and large multi-Yagi arrays. Even auroral propagation, rarely heard north of the NSW-Victoria border, has produced more two metre contacts than meteor scatter, yet meteor scatter is a mode potentially available all of the time. Furthermore, the Australian amateur population is concentrated in cities which in many cases represent ideal path lengths for meteor scatter contacts: Sydney-Adelaide, Sydney-Hobart, Brisbane-Melbourne, Brisbane-Adelaide, Canberra-Hobart and Canberra-Brisbane.

By comparison, meteor scatter contacts in Europe and North America are more common than sporadic E contacts on two metres, and certainly

more common than EME. Of the 64 pages devoted to two metre activity reports published in DUBUS magazine during 1994, a total of 10 pages was allocated to EME, nine pages to tropo contacts above 700 km, seven pages to sporadic E and nine pages to auroral contacts. Meteor scatter reports took up 29 pages. European activity supports several meteor scatter contests and DXpeditions to rare grid squares are common during major shower periods. In North America, a similar situation applies, with meteor scatter contacts routinely reported in *QST* since the late 1950s.

Australian meteor scatter activity has a 25 year history. The first reported contacts were on six metres between VK8AU in Tennant Creek and VK8KK in Darwin, VK4RO in Ayr, and VK5ZDR and VK5ZWW in Adelaide in 1970^{6,8}. These stations were subsequently joined by VK2ZQJ and VK7ZGJ, all on six metres. By 1973 meteor scatter on six had become a fairly popular sport in the eastern states, with up to six participants in Sydney alone during the major shower periods. Typical paths worked were VK2 and VK3 to VK4, VK5 and VK7, and VK3 to VK4. Attempts were made between VK2 and VK8 and between VK5 and VK6 without success.

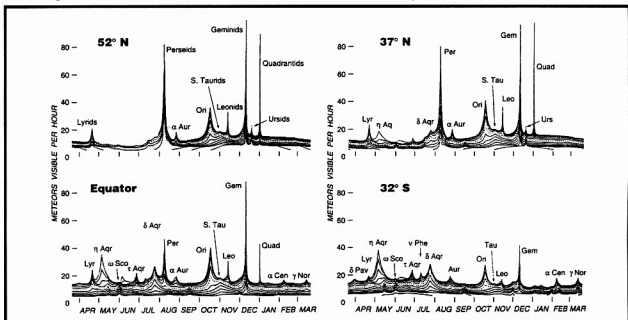


Figure 1 - The meteor year. (Reproduced by permission of Sky Publishing Corporation)

SHOWER	DURATION	MAX	RADIANT RA	VEL Dec	ZHR			COMMENT
					1	2	3	
Quadrantids	Jan 01-05	Jan 03	230	+49 41	110	97	13	not visible in VK
Alpha Centaurids	Jan 28-Feb 21	Feb 01	210	-59 56	*25	16	18	see text
Gamma Normids	Feb 25-Mar 22	Mar 14	249	-51 56	8	13	19	see text
Lyrids	Apr 16-25	Apr 22	271	+34 49	*90	24	20	just visible in VK
Eta Aquarids	Apr 19-May 28	May 03	336	-02 66	50	18	38	good for VK
Piscis Austrinids	Jul 09-Aug 17	Jul 29	341	-30 35	8	18	24	peaks with δ Aquarids
Delta Aquarids	Jul 08-Aug 19	Jul 29	339	-16 41	20	19	29	good for six, see text
Persids	Jul 17-Aug 24	Aug 12	46	+58 59	95	80	14	not visible in VK
Alpha Aurigids	Aug 24-Sep 05	Sep 01	84	+42 66	15	20	20	barely visible in VK
Orionids	Oct 02-Nov 27	Oct 22	95	+16 66	25	41	28	fair for VK
Leonids	Nov 14-Nov 21	Nov 18	152	+22 71	* 37	18		try in 1998-99
Phoenicids	Nov 28-Dec 09	Dec 06	18	-53 18	100	-	-	a punt; see text
Geminids	Dec 07-Dec 17	Dec 14	112	+33 35	110	78	42	best for E-W paths
Ursids	Dec 17-Dec 26	Dec 23	217	+75 33	50	23	12	not visible in VK

* periodic shower produces stated ZHR only in certain years, at other times activity is much lower.
1 Stated ZHR in Astronomical publications
2 Observed ZHR at 37°N over 10 years 1981-91
3 Observed ZHR at 32°S over ten years 1981-91

Table 1 - Meteor Shower Calendar.

But the 1970s flurry on six did not produce results on two metres. Attempts were made between Sydney and Adelaide but, as far as is known, no contacts were completed. During 1976 VK7ZGJ was offering two metre schedules without takers. Meteor scatter activity reports appeared occasionally in the VHF notes in *Amateur Radio*⁸ until the late 1970s when activity faded with the rise of cycle 21. Presumably the six metre fraternity then had bigger fish to fry. No activity was reported until 1983 when the two metre meteor scatter contacts were made between VK1, VK3 and VK4; however, this coincided with the development of aircraft enhancement modes between Sydney, Melbourne and Brisbane, and between Canberra and Melbourne. Aircraft enhancement has been the "in" DX mode since, and only occasional efforts have been put into meteor scatter. In 1987 VK3UM reported contacts between VK3, northern VK2 and VK4 during the Orionids in the previous year, and advocated the use of 144.350 MHz as a random meteor scatter calling frequency³. Since then, occasional contacts have been made between VK3, VK2 and VK4. In 1995, VK2 to VK8 was attempted without success.

There are numerous explanations for the dearth of meteor scatter activity in Australia. Probably the most obvious is that serious VHF activity, with some honourable exceptions, is centred in the

capital cities, and the distances involved are such that two metre contacts are relatively easily achieved during tropo and sporadic E openings in most years. It is simply a matter of waiting around and being on at the time. Thus Sydney works Adelaide on tropo and Es (sporadic E), Tasmania on Es, and Melbourne and Brisbane on tropo/aircraft; Canberra is more or less local anyway. Melbourne works Adelaide and northern Tasmania on tropo, Canberra and Sydney on tropo/aircraft, Brisbane on Es and Albany/Perth on tropo. Sydney and Brisbane get ZL on tropo and Es.

A reasonably well-equipped Sydney station can expect to work VK1, VK3, VK4, VK5 and ZL every year and less

frequently VK7. Alice Springs VK8 is potentially available on Es, given propagation and activity, and VK6 has been worked (once) on tropo. Melbourne is better off in that it can expect VK1, VK2, VK5, VK6 and VK7 on tropo and VK4 and VK8 on Es; in fact, several Melbourne stations need only VK9 to achieve Worked All Call Areas on two metres. Since these DX paths are available without meteor scatter, and the really difficult ones such as VK2-VK6 are too far anyway, the mode has not really been needed, with one exception. This is VK9 Lord Howe Island which would easily support meteor scatter paths to Melbourne, Adelaide, Tasmania and ZL, and tropospheric paths to Brisbane and possibly Sydney. A two metre DXpedition to Lord Howe Island is clearly needed!

Coupled with the availability of other modes is the apparent lack of interest by Australian operators in collecting grid squares on two metres. Grid square collecting is an important incentive in North America and Europe for the use of meteor scatter, as is the ability to work new countries and states. As shown, meteor scatter is not particularly useful for working new states in Australia, while other countries, apart from ZL from the south-east and P29 and JA from VK4 and VK8, are only available on EME.

But another reason that meteor scatter has not been used much on two metres is that it has been tried and found wanting.

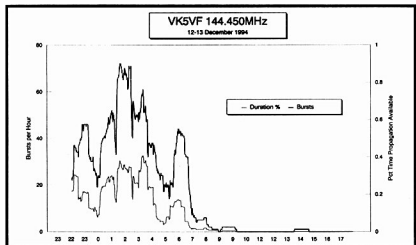


Figure 2

METEOR SHOWER DATA FOR LATITUDE 35 DEGREES SOUTH

SHOWER	PATH	TIME	OFFSET	COMMENT
Alpha Centaurids	NS	2300-0200	W	The best of several small showers contributing to relatively high background rates at this time of year.
January 28-Feb 21 (February 7)	NW-SE	0700-1000	SW	Also applies to β -Centaurids peaking Feb 1, the γ -Normids (Mar 14) and δ -Pavonids (Apr 7). January through March is a good period to try random contacts.
25/hr*	E-W	0000-0900	N	
56km/s	NE-SW	2200-0400	NE	
	N-S	0700-1100	E	
Lyrids	NW-SE	0200-0400	SW	The April Lyrids are just worth including in the table.
April 16-25 (April 22)	E-W	0300-0500	S	Only useful for E-W paths in VK as the radiant is well to the north.
90/hr*	NW-SW	0400-0600	NE	
49 km/s				
Pi Puppids	N-S	1200-1500	W	Stated ZHR may be exaggerated. Coincides with Lyrids and definitely worth trying. Another contributor to high background activity rates during April.
April 15-April 28 (April 23)	NW-SE	2000-2300	NE	
40/hr*	E-W	1200-1400	N	
18 km/s	NE-SW	1200-1500	NW	
Eta Aquarids	N-S	0230-0530	W	Australia's all round best shower. The high meteor velocity produces trails high up in the E region to produce better results on long-haul paths. This shower has produced complete call signs from VK5VF as received in Sydney.
May 1-6 (May 3)	NW-SE	0330-0630	SW	
50/hr	E-W	0600-0900	-	
66 km/s	NE-SW	0800-1100	SE	
	N-S	0900-1200	E	
Arietids	NW-SE	0730-0930	SW	Never tried. Said to be best for eight days centred on June 7.
May 29-June 19 (June 7)	E-W	0900-1100	S	
60/hr	NE-SW	1000-1200	SE	
Delta Aquarids	N-S	2100-2400	W	Radio rates are higher on six metres and the lower meteor meteor velocity can produce long bursts. On two metres, low velocities produce fewer bursts. An average of 23 bursts/hour was recorded in Sydney from VK7RNH on 144.474MHz at 0300-0700 EAST on 29 July 1995.
July 26-31 (July 29)	NW-SE	2130-0030	SW	
20/hr	E-W	0000-0300	S	
43 km/s	NE-SW	0230-0530	SE	
	N-S	0330-0630	E	
Orionids	N-S	0030-0230	W	The Orionids, like the ϵ -Aquirids, is associated with Halley's Comet and produced quite good results in the late 1980s. Less efficient for N-S paths.
October 18-23 (October 22)	NW-SE	0200-0400	SW	
25/hr	E-W	0300-0600	S	
66 km/s	NE-SW	0500-0700	SE	
	N-S	0630-0800	E	
Leonids	N-S	0300-0400	W	Produced a 40 second burst long enough to support contacts between VK4, VK3, VK2 and VK1 on 18 November 1995. Should improve over the next few years and could be spectacular in 1998-9.
November 14-20 (November 18)	NW-SE	0400-0600	SW	
10/hr*	E-W	0500-0700	S	
71 km/s	NE-SW	0630-0930	SE	
	N-S	0830-0930	E	
Phoenicids	N-S	1500-1700	W	An intense daylight shower peaking for a few hours. ZL4AAA reports high activity rates from Hobart FM stations. Clearly worth a try, despite low 18 km/s meteor velocity.
December 6	NW-SE	1400-1800	NW	
100/hr	E-W	1500-0100	N	
18 km/s	NW-SE	2200-0200	NE	
	N-S	2300-0100	E	
Geminids	NW-SE	2330-0230	SW	One of the best for two metres in Australia. Because the radiant is well to the north, the Geminids are really only good for east-west paths. Radio rates of up to 70 bursts/hour were observed on VK5VF on 144.450MHz in December 1994 and 1995.
December 10-14 (Dec 12-13)	E-W	0100-0300	S	
100/hr	NE-SW	0200-0400	SE	
35 km/s				

* ZHR varies from year to year. All times are in local mean time at the midpoint of the path.
After Bain W4LTI in reference 1.

Table 2 - A revised version of Bain's table¹ with all the data adjusted for the southern hemisphere perspective.

Inspired by reports and articles in *QST* and European publications, many operators have had a go during traditional shower periods; but the results have not been particularly exciting and, in fact, downright disappointing compared with the northern hemisphere experience. The problem here is that meteor showers of legendary fame, such as the Perseids and Quadrantids, are not available in

southern Australia. The radiant of the Perseids, for example, has a declination of +58 degrees, which is below the horizon in Sydney and therefore never visible. Since the Perseids supports two-thirds of all European meteor scatter contacts, we are immediately well behind in terms of shower opportunities. In fact, of the three most popular showers in the northern hemisphere which account for nearly 80% of all contacts,

only one - the Geminids in December - is capable of producing results in the southern Australian states. The others are too far north to be of much use.

If we turn to meteor showers with radiants far enough south to be useful, the pickings are unfortunately slim. The best southerly showers are the ϵ Aquarids in May, the delta Aquarids in July, the Orionids in October and possibly the Phoenicids in December. Activity rates are only a fraction of the big northern hemisphere showers, leaving us with the only consolation that the background or random activity level in the southern hemisphere tends to be higher than in the northern hemisphere between March and August.

Coupled with this is the more subtle problem that the meteor shower data as published in the classical meteor scatter references^{1,4} are a poor guide to shower activity for southern hemisphere operators. Quoted zenith hourly rates mean what they say; hour rates as cited in the literature only apply when the shower radiant is at the zenith, ie overhead for the observer. This means that the cited zenith hourly rate (ZHR) for showers with radiants well to the north of us will produce much lower apparent activity and, since this applies to most of the big showers, VK operators cannot expect to do as well as the North Americans and Europeans. For most showers, and especially the big traditional events, the ZHR for the southern hemisphere is much lower. This is very clear from the observed ZHR data for the two hemispheres as shown in Table 1.

Figure 1 shows the annual visual meteor activity rate throughout the year as observed at four latitudes on the earth's surface over the past ten years. This chart appeared in *Sky & Telescope*⁵ last year and was derived from data collected by ten amateur observers, including one in Western Australia, and published in the July 1994 issue of *Astronomy and Astrophysics*. Each plotted line is for a different hour of the night. Rates generally increased from dusk to dawn; the dashed line is at midnight, local mean time. The chart provides stark confirmation that the classical meteor showers of the northern hemisphere experience are much poorer or even non-existent in Australia. The

highest visual counts at 32 degrees south (about Taree NSW) come from the eta Aquarids and Geminids at around 40 per hour, compared with 80-100 per hour from the Perseids, Geminids and Quadrantids in the northern hemisphere. It also seems that the delta Aquarids, the traditional southern hemisphere "major" shower, could be better described as a bump in a period of fairly high background winter activity.

Consistent with the *Sky & Telescope* data, the best two metre meteor scatter opportunities in this part of the world are the eta Aquarids in May, the Orionids in October and the Geminids in December. These three showers have all produced contacts in VK; indeed, returns are good enough to produce results from the lower power two metre beacons. Figures 3 and 4 show plots of meteor returns from the VK5VF beacon on 144.450 MHz as received in Sydney during the 1994 Geminids. The shower peaked for the east-west path at 0200-0300 EAST, producing up to 70 bursts per hour, with many several seconds long. Remember that this is from a 20 watt beacon into an omni-directional antenna; 100 watts into a 10 element Yagi would have an ERP something like 20 dB over the beacon.

Additional meteor scatter opportunities include the delta Aquarids in late July and the alpha Centaurids - gamma Normids in February and March. The delta Aquarids were once quite popular on six metres, but the relatively low meteor velocity makes them less useful for 144 MHz. Still, a burst rate of up to 25 per hour was recorded from the VK7RNH two metre beacon in Sydney during the 1995 shower. The Centaurids and Normids represent the fairly high background meteor rate observed in February and March, when tropo and aircraft circuit operators often notice the effect of random meteors.

Two other showers have potential form. The Phoenicids in December is a very short duration daylight shower with a clearly stated hourly rate of 100. According to ZL4AAA², this shower has produced good returns from Hobart FM stations in ZL1, although I was unable to hear anything from the Phoenicids in 1995. The other shower well worth watching is the Leonids in November, which has produced spectacular results

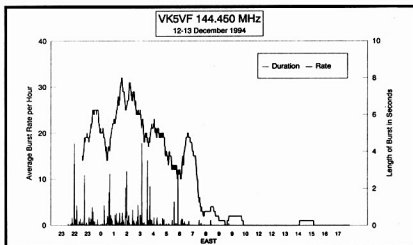


Figure 3

at 33 year intervals. In 1996, visual hourly rates of up to 150,000! were observed in the northern hemisphere, and *QST* reported that the event produced truly amazing conditions on the lower VHF bands⁷. The Leonids are next due to peak in 1999, and activity has already started to increase. On 18 November 1995 east Australian aircraft enhancement circuits on 144 MHz were treated to a 40 second burst from one or more large Leonids meteors that produced contacts between VK4 and VK3, VK2 and VK1.

The classic meteor shower data reference is Bain's table¹ published at least twice in *QST* over the years and reproduced in ARRL VHF handbooks. A revised version of the table (Table 2) is reproduced here with all the data adjusted for the southern hemisphere perspective. Some of the northern hemisphere showers have been omitted because they are not available for mid latitude observers in our parts of the world, but these have been replaced by southern hemisphere showers that offer better value.

Operating Tips

Two metre meteor scatter contacts are readily available for stations running 100 watts or more to a 13 dB antenna or better. Shower periods give the best results, of course, but random meteors will support contacts when the background rate is relatively high. The most important considerations are frequency readout accuracy and timing.

Potential meteor scatter operators should be able to determine their two metre frequency with an accuracy of better than 500 Hz. A useful check, by the way, is available in any capital city with TV channels 2 and 10. The difference between the two video carrier frequencies is exactly 145 MHz, which

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can usually be heard as a mixing product in urban locations. Since TV stations maintain accurate frequency control, the 145 MHz beat gives an accurate calibration point.

Timing is even more important as each station will be making timed transmissions for short periods and clocks need to be set accurately. Typical meteor scatter schedules run in one minute sequences where one station transmits for the first and third fifteen second periods and the other station for the second and fourth periods. Thus a Sydney station trying to work Adelaide might transmit from 0-15 seconds and again from 30-45 seconds, while Adelaide transmits at the 15-30 and 45-60 seconds intervals. The short periods are better than, say, one minute periods because there is a much greater chance of catching a long burn that could allow a two-way exchange. But a small error of one or two seconds in the station clocks could lead to the two stations doubling up for four out of 15 seconds, or 27 percent of the time. Timing accuracy is therefore vital.

Antennas should be aimed to maximise meteor returns given the position of the radiant relative to the path. This usually requires beam headings for paths less than 1,500 km to be off set by 7-15 degrees from the great circle bearing. The closer the stations, the greater the offset should be in the direction away from the radiant. About 10 degrees should cover most cases. This is not critical for single Yagi or two stacked Yagi stations as beam widths are generally wide enough to allow for a pointing error of up to 15 degrees anyway. Stations with narrow beamwidths should consult the Bain reference for antenna heading offsets.

Operating mode is usually SSB, although high speed CW is popular in Europe using tape recorders. SSB is a lot more convenient, but try to speak rapidly to maximise the information rate, and avoid phonetics for call signs. The conventional RS(T) reporting system is not particularly useful for meteor scatter and a recommended system, as used by the Europeans, is set out below. A virtue of this system is that numbers two to five are only used for signal duration and six to nine only for the signal strength. If you

hear a "two" on a short burst, for example, you know that this is definitely not a strength report.

Recommended MS Reporting System

Duration	Strength
2 <Ss	6 <S3
3 5-20s	7 S4-S5
4 20-120s	8 S6-S7
5 !!!!!!!	9 >S7

A typical exchange might be as follows:

0-15 seconds: VK5LP VK2FLR, VK5LP VK2FLR, VK5LP VK2FLR, etc (from VK2FLR)

15-30 seconds: VK2FLR VK5LP, VK2FLR VK5LP, VK2FLR VK5LP, etc (from VK5LP) and so on until one station copies enough of both callsigns to

identify calling and called stations. He then sends a report:

VK5LP VK2FLR 27 27 27 VK5LP VK2FLR 27 27 27, etc (from VK2FLR)

Since VK5LP is not yet sending a report, VK2FLR assumes that he still needs callsigns so both calls and reports are sent until VK5LP starts sending a report code as well. Once VK2FLR is aware that VK5LP is sending reports, then reports only are sent:

27 27 27 27 27 27 27, etc (from VK2FLR)

As soon as a report is copied, send a "roger" but keep sending your report until you know the other station has got it:

27 roger 27 roger 27 roger, etc.

Meteor Scatter Basics

The earth is continuously bombarded by dust and small particles swept up in the earth's gravitational field as it orbits the sun. Particles about the size of a grain of sand can be seen burning up in the atmosphere at night as meteors or shooting stars. Larger particles sometimes survive their fiery entry and reach the surface of the earth as meteorites. The rate of entry is highest at around 6 am local time because the observer's position on the earth's surface is then moving in the same direction as the earth's orbit around the sun, hence more meteors are swept up. Conversely, meteor activity is lowest at 6 pm because the velocity of the earth's surface at the position of the observer is now subtracted from the earth's orbital velocity, hence fewer meteors are swept up. Random meteor activity is something like three times as high at dawn as at dusk.

At certain times of the year, the earth passes through dust trails left by comets when meteor activity rises sharply to produce meteor showers for short periods. Shower meteors appear to the observer to originate at a particular point in the sky, called the radiant, specified in astronomical co-ordinates Right Ascension and Declination. Right

Ascension is measured in hours and minutes and represents celestial longitude, while Declination is measured in degrees and minutes and specifies celestial latitude. Declination is stated as a positive or negative number with reference to the celestial equator. Thus the south celestial pole, lying about half way between the Southern Cross and the Small Magellanic Cloud, has a declination of minus 90 degrees. An object lying on the celestial equator has a declination of zero degrees. The familiar constellation Orion (the saucepan) has a declination of about plus 5 degrees and is therefore about five degrees north of the celestial equator. The Southern Cross is about minus 70 degrees in declination and therefore is only 20 degrees from the south celestial pole.

To determine whether an object is visible to an observer located at a particular latitude on the earth's surface, declination measured on the celestial sphere can be referred to degrees of elevation above or below the horizon of the observer. An observer in Sydney at a latitude of 34 degrees south, for example, will see the south celestial pole 34 degrees above the southern horizon, but at the same time the north celestial pole will be 34 degrees below the northern horizon. It should be clear that the furthest northerly celestial object visible in Sydney would have a declination of

When you hear a roger from the other station, the contact is complete. During shower periods, long bursts can extend beyond the 15 second periods, so be ready to go back with the appropriate response followed by a quick break to complete the contact or add pleasantries.

References

1 W F Bain W4LTU "VHF Meteor Scatter Propagation" *QST* May 1974

2 R B Cooper ZL4AAA "Meteors and VHF" *Break-In* July-September 1994

3 D McArthur VK3UM "Two Metre Meteor Scatter" *Amateur Radio* August 1987

4 M R Owen W9IP/2 "VHF Meteor Scatter-An Astronomical Perspective" *QST* June 1986

5 M Barlow Pepin (ed) "Observers Page" *Sky & Telescope* June 1995

6 W Watkins VK5ZWW "VHF Meteor Scatter Propagation" *Amateur Radio* August 1971

7 S Harris W1FZJ "November Leonids - Shower of a Lifetime" *QST* January 1967

8 E Jamieson VK5LP (ed) "VHF Notes" *Amateur Radio* April 1967; March, September 1972; September, November 1975; May 1980; December 1983; August 1986; July 1987.

9 G Dawes, P Northfield & K Wallace, *Astronomy* 1995, Eastern Australian Edition (Annual) Quasar Publishing, Strathfield NSW.

*29 Allen Street, Glebe Point NSW 2037

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+90 - 34 = +56 degrees. This is why the radiant of the Perseids shower with a declination of +58 degrees is never visible from Sydney.

Right Ascension, the measure of celestial longitude, looks complicated because it is specified in hours, minutes and seconds, but these can easily be converted into degrees. Since a complete circuit along the equator of the celestial sphere is 360 degrees and the earth turns on its axis once every 24 hours, simply divide degrees by hours and minutes. This produces 15 degrees per hour and one quarter of a degree per minute, so an object with a Right Ascension of, say, 11 hours 20 minutes has a celestial longitude of $(11 \times 15) + (0.25 \times 20) = 170$ degrees. Zero degrees in celestial longitude is at the point on the celestial equator where it crosses the ecliptic, the path followed by the sun along the celestial sphere. When the sun crosses the celestial equator from south to north, it is then the spring equinox in the northern hemisphere and the autumn equinox for us. At that point the sun has zero degrees celestial longitude (or 0 hours 0 minutes 0 seconds in right ascension) and zero degrees in declination or celestial latitude.

Right Ascension tells sidereal time when the particular object is at the zenith for the observer (which is why it is in hours and minutes). To determine

whether the object is visible, the observer must know local sidereal time. Since sidereal time is referred to the apparent rotation of the celestial sphere rather than the sun as is civil time, the sidereal day is about four minutes shorter than the civil day, hence sidereal time must be calculated from astronomical tables. A simple approximation is to apply the formula Greenwich Mean Sidereal Time = $0.06571 \text{ days} + 1.00274 \text{ hours}$ for the number of civil days and hours from the beginning of the sidereal year at midday on March 21, and then adjusting for the difference between the observer's longitude and the Greenwich meridian. Thus 6 am on May 3 in Sydney is 2000 hours on May 2 at Greenwich. Greenwich sidereal time will then be 42 days and 8 hours in civil time after noon on March 21, or 0.06571×42 plus 1.00274×8 , or 10.77 hours GMST. Adding 10 hours gives sidereal time in Sydney as 20.77 hours at 6 am on May 3. Since the radiant of the eta Aquarids is 22 hours 20 minutes, it will then be just 36 minutes or about two degrees from the zenith for a Sydney observer, good for east-west meteor scatter paths.

More accurate estimates can be obtained from astronomical tables as in reference 9 which give Greenwich sidereal time for every day or month of the year; however, the simple method is adequate for this purpose.

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■ Equipment Review

Yaesu FT-10R 2 m Hand Held Transceiver

*Reviewed by Ron Fisher VK3OM**

The first thing that strikes you with the FT-10R is its diminutive size. It is only 57 mm wide by 123 mm high and 26 mm deep and that includes the battery. To put some perspective into that, have a look at the photo that compares it with a somewhat older Yaesu, the FT-208. In appearance, the FT-10R has a family resemblance with the slightly larger FT-51R dualbander reviewed last June. Operating the FT-10R is, like most VHF handhelds, not self evident; however, the instruction manual is very helpful and easy to follow.

One feature that is not obvious from the advertising information is that the entire keyboard is removable and can be replaced with three others. This determines the operating features that the transceiver provides. The version sold by Dick Smith Electronics has an A16D key board provided, which is the second top model. The top version, the A16S, has a digital voice recorder included which is the only feature missing from the A16D. I am not sure if the other keypads are available in Australia or what their cost would be.

The first thing you might want to know is where the battery is. Well, it is, in fact, the back half of the package. A push button at the top back allows the battery to be removed. The Australian version has an FNB-41 battery supplied which has a 600 mAh capacity at 9.6 volts. This gives

a maximum transmitter output power of five watts as standard, unlike most other 2 m handhelds on the market. Naturally, selectable lower power is also available (2.8, 1.0 and 0.1 W).

A very handy belt clip is attached to the rear of the battery pack. Two other

batteries, the FNB-40 which is 6 V at 650 mAh and the FNB-42 which is 9.6 V at 1100 mAh, are available. Also, no battery charger was supplied with our review transceiver which necessitated a few haywire connections when the battery went flat. I am assured that all FT-10R transceivers sold will come with a charger and adaptor to connect to the battery.

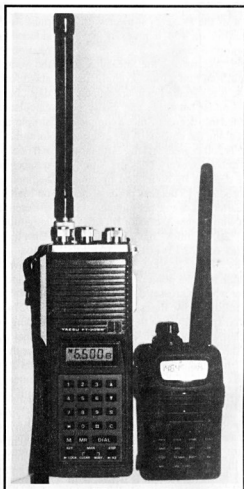
The FT-10R On Air

If you have been used to a ten year old handheld, you will find some unusual features. The power on/off switch is a small red button at centre left. Its one of those controls that you have to push and hold. It takes half a second for something to happen either for the on or off function.

Next, the push-to-talk button is on the



The reviewer holding the diminutive FT10R in the palm of his hand.



The FT-10R alongside the old FT-208. How things have changed!

top left hand corner which is the ideal position for it. There are two buttons on the side which operate the display illumination and open the squelch for very weak signal reception.

The antenna connector does not have the usual BNC socket but uses the smaller SMA type. If you intend to use an antenna other than the supplied flexible whip, you will need a CN-3 antenna adaptor for use with BNC connectors. There are only two normal rotary controls and these are mounted concentrically on the top of the transceiver.

The larger outer control is the audio gain control and the smaller top knob is a multi-function control. It acts as a tuning control, memory selector and controls 27 other functions such as squelch, transmitter power output and memory labelling, to name a very few. You will be able to spend hours playing with this transceiver without even getting on the air.

All of these functions are clearly displayed on the large (relatively) LCD. The actual size of the LCD is 3.5 cm wide by 1.5 cm high. There are around thirty status indicators built into the display in the normal situation with perhaps double that number when the multi-function control is in use. There is also a ten segment "meter" showing relative received signal strength and transmitter power output.

The tuning control can be set to give a choice of steps. The sizes available are 5, 10, 12.5, 20, 25 and 50 kHz with 1 MHz steps available with the push of a key pad button. In addition to all of this, a frequency can be entered directly via the keypad. If you want 146.700, just push 4,6,7,0,0 on the pad. I would guess that, with 99 memories, most of the time you will use the VFOs and keyboard to tune frequencies that will be entered into the memory, and that most normal operation will be from memory selection.

The frequency coverage of the FT-10R is 144 to 148 MHz on transmit and receive, with an extended receive coverage from 140 to 174 MHz. Unfortunately, the receive coverage does not include the aircraft band.

Naturally, there is an excellent selection of scanning modes either in VFO or memory. In VFO mode, you can



One half of the FT-10R is transceiver, the other is the battery.

scan the entire tuning range or you can store upper and lower scanning limits. It is also programmable to resume scanning after five seconds on a signal or to wait until the carrier goes off air.

As with many modern VHF transceivers, the FT-10R has a wide selection of tone signalling functions built-in. However, it seems that these systems are not used to any extent in Australia that I have heard of. Anyhow, if you do use these, they are all available in the FT-10R, so go to it.

With all of this, how does the FT-10R perform on air? In a word or two, very well indeed. The received audio quality is really quite remarkable considering the size of the speaker. The acoustic output is also excellent. On transmit, reports on the audio quality indicated plenty of deviation and good frequency response. There is an input/output socket for an external speaker microphone but it requires a special four contact plug about 3.5 mm in diameter, so my old Yaesu speaker microphone could not be connected without the optional CT-30 microphone adaptor. The matching MH-

34B4B speaker mic is available from Dick Smith Electronics stores as an alternative.

Can you use the FT-10R on packet? Yes, indeed you can, and the instruction book gives a simple circuit to show you just how to do it.

The FT-10R – the Bottom Line

I have always been an enthusiast for Yaesu handhelds. I have two in my collection from which I have had faithful service over many years. While these new models are getting more complicated from an operational point of view, they are still straightforward in their basic features. To add to this, Yaesu instruction books set the standard and are easy to follow and apply.

The FT-10R is priced at \$455 and the matching speaker microphone is \$49.95. Talk to your local Dick Smith Electronics store for more information on this amazing little hand held transceiver.

*24 Sugarloaf Road, Beaconsfield Upper VIC 3808

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■ Filters

A Combined Speech LP Filter and CW Filter Using a Single IC Package

Lloyd Butler VK5BR describes a simple filter which would work well as the filter in a direct conversion receiver designed for both speech and CW.*

Introduction

Here is a simple circuit which is switchable between a sharp cut-off above 2.5 kHz and a narrow bandpass around 800 Hz. In the low pass (LP) state it can be used on speech as the filter section of a direct conversion receiver. For CW operation, the cut-off frequency is lowered to 800 Hz and another high pass (HP) section with cut-off below 800 Hz is added to form a narrow bandpass around 800 Hz. To use this, the CW Morse beat note is adjusted to the bandpass centre frequency.

Operation

In the following paragraphs, operation of the circuit is described. If filter terminology used appears unfamiliar, the reader is referred to the opening paragraphs of the writer's previous article (reference 1). The article also

discusses a little more about the types of filter employed here.

The circuit makes use of the National Semiconductor switched capacitor LP filter package type MF6, which includes two operational amplifiers with the sixth order Butterworth filter. The filter is also operated from its own internal clock operating at 50 times the cut-off frequency. To achieve the 2.5 kHz and 800 Hz LP cut-off, the clock frequency is switched between 125 kHz and 40 kHz respectively. As a sixth order Butterworth, the switched capacitor filter has an attenuation slope beyond cut-off of 36 dB per octave.

To produce the 800 Hz high pass, one of the operational amplifiers is connected as a second order Chebyshev filter. This type filter gives a theoretical attenuation at the first octave of 17 dB, not as great as the LP filter but quite

effective in reducing audio noise or interference below the 800 Hz centre frequency.

Figure 1 illustrates the filter system in block form. For speech, the LP filter is operated on its own. For CW, its cut-off frequency is lowered and its output fed via the HP filter section.

Switched capacitor filters produce spurious output signals if fed with a frequency close to their clock frequency. To guard against any such signal coming from the receiver, the switched capacitor filter is fed via a simple anti-alias filter with a roll-off above 5 kHz.

For circuit detail, refer to Figure 2. The MF6 package operates on a split power rail basis and a centre rail is derived from the single DC supply with resistors R11 and R12. Supply voltage is not critical and the circuit works on any well-filtered single DC supply between eight and 14 volts.

The clock frequency is set by components C3, R4 and R5. Switch S1 selects speech or CW and its contacts S1a alter the resistance in the circuit to change the clock frequency and hence the LP cut-off frequency. Components C8, C9, R7, R8, R9 and R10 make up the HP Chebyshev active filter in conjunction with one of the MF6 internal operational amplifiers. Switch contacts S1b connect the output either direct from the LP circuit or via the HP circuit.

The non-inverting input of the second operational amplifier is connected internally to centre rail, so this amplifier has had to be used in the inverting mode. Roll-over above 5 kHz for the anti-alias filter is partly done by capacitor C4 in the amplifier feedback circuit and partly by capacitor C1 at the input.

The internal functional block diagram for the MF6 is shown in Figure 3.

Performance

Measured response of the filter in its two different modes is shown in Figure 4. Other relevant information is: Input Resistance, 2 kohms; Output Resistance, 1 kohm; Voltage Gain, LP - 0.5 and BP - 1.13; DC Supply Load Current, 5 mA (at 10 V) and 7 mA (at 12 V).

If required, the filter can be used as a stand-alone unit with its input fed from the output of a receiver or transceiver headphones jack. The output of the filter

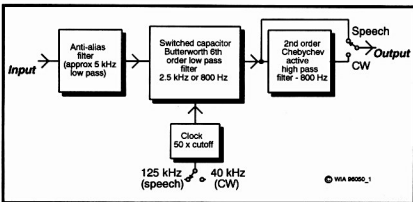


Figure 1 - Block diagram of the combined 2.5 kHz filter for speech and 800 Hz BP filter for CW.

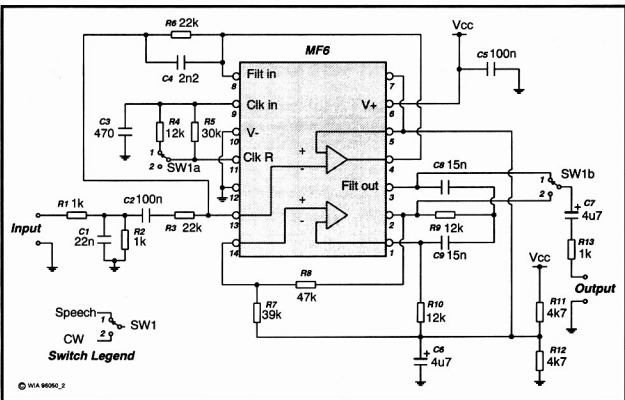


Figure 2 – Circuit diagram of the combined 2.5 kHz filter for speech and 800 Hz BP filter for CW using one IC package.

is suitable to operate into high impedance headphones. To operate a loudspeaker, a power amplifier such as the LM380 or LM386 can be added. Of course, the load current of these power amplifiers swings widely with variation in audio level and they require a well regulated power source, preferably isolated from the filter supply.

One characteristic of the switched capacitor filter is that there are output components near clock frequency. With the lowest cut-off at 800 Hz, these components are no lower in frequency than around 40 kHz and could easily be electrically filtered out. However, as they are outside the frequency range of the human ear, the ear does the filtering for us.

Other Uses of the MF6

What's been described has been a circuit with fixed defined cut-off frequencies. However, the MF6 is very versatile because the LP cut-off can be set to any audio frequency by simply altering the circuit constants controlling

the clock. It was used as a variable filter in a previous article (*reference 1*). In another article (*reference 3*) it was used in conjunction with a CMOS divider IC

package to make a Wideband Variable Audio Frequency Oscillator. If you are interested in the switched capacitor filter, you might have a look at that application.

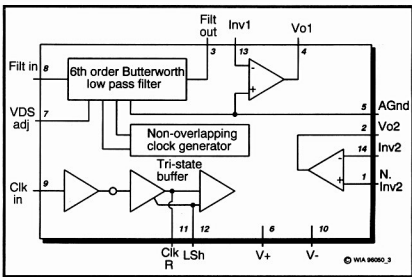


Figure 3 – Internal functional block diagram of the MF6 switched capacitor filter.

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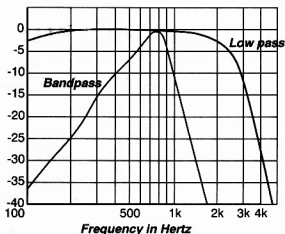
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Figure 4 - Measured filter response showing nominal 2.5 kHz lowpass and 800 Hz bandpass modes.

Summary

A receiver audio filter has been described which makes use of a single MF6 switched capacitor filter package. It can be selected to operate either as a 2.5 kHz sharp cut-off low-pass filter for speech or a narrow bandpass filter around 800 Hz for keyed tone (as detected in CW mode). It could well be used as the audio filter in a direct conversion receiver where signal selectivity is achieved by the sharp cut-off response of the audio system.

References

1. Lloyd Butler VK5BR - *An Adjustable Audio Filter System for the Receiver - Amateur Radio, March 1995.*
2. MF6 6th Order Switched Capacitor Butterworth Lowpass Filter, National Semiconductor data sheets.
3. Lloyd Butler VK5BR - *Wideband Variable Frequency Audio Oscillator - Amateur Radio, March 1988.*

*18 Ottawa Avenue, Parramatta SA 5041

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WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of December 1996:

EA2SN MR J IZA
L21031 MR R A HOCKEY
L21032 MR B YOUNG
L21033 MR C J THOMPSON
L21034 MR J H KIM
VK2AWR MR E W RENOUF
VK2CP MR J DE CAIRES
VK2DNO MR P J MARTIN

VK2KAY MR B J HARWOOD
VK2MMM MR M RICHMOND
VK2TJO MR M J HOWELLS
VK2USB MR W A MCKEAN
VK2ZEJ MR C J NEWTON
VK3BPU MR A PAYNE
VK3CSJ MR C JEFFREY
VK3EST MR D LUSZCZAK
VK3TEH MR D HUMMEL
VK4AWL MR R KELLY
VK4HBA MR A BANNAH
VK5BDH MR T R TOMLINSON
VK5TSX MR J W KOPP
VK5XTC MR A J CAREY

■ Antennas

Random Radiators

with Ron Cook VK3AFW and Ron Fisher VK3OM*

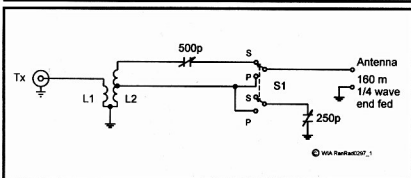


Fig 1 - Simple 160/80 m ATU.

L1 6 turns insulated wire on earth end of L2.

L2 70 turns #24 SWG enam, 1 inch diameter, centre tapped.

S1 S = series (160 m)

P = parallel (80 m)

More on Simple ATUs

First a note from John, VK3KWA. "Regarding your item 'Simple and Effective Two Band ATU' in *Amateur Radio* for March 1996, I found a similar circuit in 'Radio Constructor', July 1968. As can be seen from Fig 1, it differs from the one you described in that it is for 160 and 80 metres, and it used two capacitors although, by appropriate switching, a single capacitor could be used.

"The idea of using a tapped coil as in this design could be worth looking at for the 80/40 m design you published, so that the tuner could be used for 30 m and possibly 20 m as well.

"I also found the circuit in Fig 2 (source unknown) for end fed antennas."

Thanks, John.

Beams in Stormy Weather

Ever wondered which way you should point your beam in stormy weather?

David W6QHS has the answers in an article published in the *VHF EME Report* of February 1996. This is a precis of his article "Pointing Yagis into the Wind".

If your elements are weak, then don't have them broadside to the wind; but if

the boom is weak, then point it into the wind. Better to lose an element than the boom. Generally this will be the best approach, as for typical beams it will result in lower forces on the rotator and mast.

Yagis tend to weathervane along the boom, particularly in gusty conditions. This can put heavy loads on the rotator and mast. If either fails it's probably "goodbye coax" at least!

Sometimes vertical wind gusts are strong enough to damage the boom of a big Yagi, so select a boom a little larger than engineering calculations would suggest are sufficient.

The bottom line is, don't overload the mast or rotator. Balance the booms and the elements and leave the antenna pointing into the predominant storm directions when you are away.

More on Yacht Antennas

Guy VK2BBF writes to say: "Fibre glass yachts are very common - almost the norm. Yachts have keels (except dinghies and trailer-sailors) made of lead or, occasionally, of iron. The keel is held on by very heavy long bolts. The tops of the bolts are accessible in the bilge and form the normal ground for the radio. The keel lead may have direct

electrical contact with the sea but is usually encased in fibreglass. However, it has a large capacitance to the sea, much larger than a plate bolted inside the hull. The keel bolt is connected to the rig or ATU by a copper strap, typically 50 to 75 mm wide and 1 to 2 m in length."

Thanks, Guy, for your contribution.

Another letter was received from Kevin VK3ANY on Mollyhawk II in Cairns. He says: "I have lived aboard a yacht for over two years, cruising the whole east coast of Australia. I thought you might be interested in my experiences. Good results from a yacht are assured if a few simple rules are followed.

"First and foremost, you **MUST** have a steel or aluminium boat. Good results are possible with wooden or plastic boats, but the **BEST** results are only achieved with a steel boat, no ifs, no buts, no maybes. Further, the steel boat should preferably have a steel deck, not a wooden deck as some steel boats have.

"Having sold your wooden or tupperware boat and got your steel boat you will only achieve the desired result with a proper installation. First, the antenna. This should be an insulated backstay. In the normal cruising yacht this will be in the 30 to 50 ft range. Do not be tempted to use a whip aerial. These are suitable for emergency use only if the mast falls over. Use good quality insulators designed for the job, or you will definitely have to use the emergency whip aerial. The insulator will have solid stainless steel terminal fittings to which the backstay is secured. The lead-in should be clamped to the terminal, NOT to the backstay itself. The connections must be made waterproof by covering with self-amalgamating tape and then covering with Denso tape. If the lead-in is connected to the backstay, water will find its way down the strands and the lead-in connection will gradually build up resistance due to corrosion.

"Next the ATU. Use an automatic ATU designed specifically for a backstay antenna. The commonly available automatic ATUs sold through marine radio dealers under a number of brands come in two versions, one for backstay aerials and one for shorter, untuned whip aerials. A manually tuned ATU is not suitable as, in a typical yacht

installation, it must be mounted remotely from the transceiver.

"Installation of the ATU is important. It must be mounted under the deck immediately beneath the lower end of the backstay. The lead-in from the backstay comes through a deck insulator directly to the ATU. This is the important part. No more than 0.1 to 0.2 of a metre of lead-in wire should be below deck. If the layout of the boat does not allow this, change the layout of your boat! There is no getting away from this. There must be no more than a few inches of lead-in wire below the deck. Remember, we are trying to achieve the best possible results, not merely good results.

"Take a thick copper wire or braid from the earth terminal of the ATU and bond it to the steel deck or deck beam adjacent to the ATU. This should be as short as possible, a few cm maximum. The total length of the lead-in wire and the earth wire should not exceed 0.2 m. You may get away with longer lengths but, if you follow this, you can't go wrong.

"The transceiver can be mounted

anywhere convenient in the boat and connected to the ATU with coax cable. Use heavy cables for the DC supply to the transceiver as it is often mounted some distance from the battery and voltage drops on transmit must be minimised.

"The technique of having an earthing plate inside or outside the hull is nowhere as effective as having a steel hull which provides an almost perfect earth.

"With an installation such as this I have had excellent results on all frequencies from 1.8 to 18 MHz, the upper limit of my transceiver. All the 2 MHz frequencies are covered without problems. I keep daily scheds with Penta Comsat marine station on 4 and 8 MHz and have never failed to get through. Should I call them at a non-sched time I always get answered first call.

"Frequently I have heard boats in the same area, sometimes in the same anchorage, having trouble contacting Penta Comsat and I or another boat have to relay for them. The other boat is invariably timber or fibreglass.

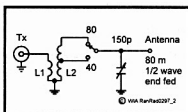


Fig 2 - ATU for 80 m.

L1 3 turns thick insulated wire.
L2 26 turns #18 SWG enam, 3.5 inches long on 2.5 inch diameter ribbed coil former.

For 15/20 m
L1 2 turns.

L2 8 turns #14 SWG enam, 2.5 inches long on 2.5 inch diameter ribbed coil former.

"Although I have emphasised the virtues of steel boats for HF operation, other types of boats can still get good results if the earth plate is as close to the ATU as possible."

Well, that seems to sum it up pretty well, Kevin. Thanks.

73 from him and 73 from me.

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Here is yet another new Yaesu dual-band transceiver. What makes it different is its amazing receiver, which tunes all the way to 1300MHz! Read our full review this month, and check out loads of other exciting articles at the same time. Don't forget the Editorial, which tells how one country has lost the complete 70cm band. Could we be next?

Of course, February's R&C has loads more for the active amateur. Make sure you check out some of these...

- Review: Diamond WS-1000E. Yes, it's a baby scanner, but even HF enthusiasts should look at this one!
- Construction project: an audio AGC for simple receivers. An opportunity to build something useful.
- The 1997 DXCC list. Here's the latest update to the ever-useful ARRL DXCC listings. With full notes.
- The Avalon Air Show. Here's your chance to catch some rare birds indeed! Full frequencies too...
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ALARA

Sally Grattidge VK4SHE, ALARA Publicity Officer

Our History Goes Global

Christine VK5CTY wrote a piece entitled "Our Mrs Mac" which appeared in *Amateur Radio*, November 1995. This was read in Austria by Wolf Harranth OE1WHC, Curator of the QSL Collection. Wolf contacted Christine seeking information about VK YLs licensed before the war, as he was assisting in the collation of information from around the world for an exhibition, and eventually a book.

As you know, in 1995 ALARA made a huge effort to gather as much information about early YLs as possible, so Christine was able to send a considerable volume of photocopied notes and photographs to

Austria. In reply Wolf wrote, "Thank you very much indeed for all your excellent help! You did a great job, and Australian YLs will now play a prominent role in our exhibition." This thanks goes to everybody who assisted in the History Project by writing their story and sending it to ALARA, as well as those who collected and collated the histories.

On The Way Up

Mary VK5AMD has just completed a course, and is now qualified as a "Vertical Rescue Training Instructor" for the SES. Mary has been an active SES member in Bordertown SA for several years. From someone who gets hysterical on the third

rung of a ladder, congratulations Mary – don't look down.

From The Old Country

Diana (Di) Cardell G0RHL is the QSL Bureau Manager for the RNARS (Royal Naval Amateur Radio Society) in the UK, and an avid reader of the ALARA Newsletter. An ALARAmee magnet now adorns her fridge to remind her of her many VK friends and she is longing for propagation to improve so that she can make more regular contacts.

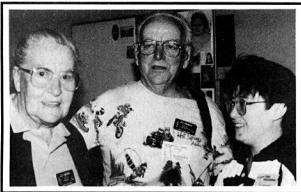
Early last year, Di and OM John ran a special event station from the beautiful windmill in their village. The idea came from the British Heritage foundation and included all water and windmills. Windmills are a feature of the Lincolnshire landscape, and the one Di can see from her shack is the only eight-sailed windmill in the country. It is in working order and grinds wheat on Sundays for the tourists.



ALARAmee Perth 1996 (l to r) Pam VK3NK, Raija SM0HNV, Christine VK5CTY. Raija has been to several World YL meets and YLRL meets, and travelled from Sweden to Perth to see how it is done in VK land.



ALARAmee PERTH 1996 (l to r) Dot VK2DDB, Eileen ZL1BRX, Judy VK3AGC. Judy broke her wrist only days before she left Victoria for Perth. By the end of the Meet the cast was covered with signatures and now sits on her radio desk reminding her of the friends she made in Perth.



ALARAmee PERTH 1996 (l to r) Win ZL1BBN, Dave ZL1AMN, Fiona XYL of photographer Jeff VK6JKR. Dave is Net Control for the 222 YL DX net.



ALARAmee PERTH 1996 (l to r) Robyn VK4RL, Gwen VK3DYL. Gwen's scarf shows badges from some of over 300 countries she has contacted.

More DX

Another DX member who would like to hear more from VK YLs is Anny DF2SL, who may be found listening on the 222 net (Mondays on 14.222 MHz at 0600 UTC – call in from 0545 UTC). Net Controller is Dave ZL1AMN who attended the ALARAMeet in Perth (see photo).

Carolyn ZL2JP has worked about 40 countries on CW and is having a ball. She and OM Dennis ZL2ME run 60 watts into an inverted vee. Many people said this would give them heaps of trouble, but Carolyn now has about 154 countries in her DXCC tally, which goes to show what can be achieved with simple equipment.

Rajia SM0HNV ran in the "Bromma Run" in Sweden a few days before leaving for Perth for the Meet. Her little grandsons ran 400 m and the adults ran 5 km. Rajia is also hoping for better conditions soon so that she can make more contacts with her VK friends. She has heard that Ruth I79ESZ may be in Australia this year.

Barbara KR4SJ lives by Lake Harding, which is backed up water from the Chattahoochee River which separates Georgia and Alabama. When hurricane Opal came through last October it took down 15 trees, four of which landed on their roof, and about 75 feet of sea wall. With no qualified builders available, Barbara and her OM are doing the repairs themselves.

Travellers

Helene VK7HD, Peter VK7HM, Marlene VK3WQ and Jim VK3DL just happened to be in Adelaide at the same time, and were joined for lunch by Christine VK5CTY, Geoff VK5TY, Jean VK5ZSX, Rod VK5SX, Meg VK5AOV, David VK5OV and Meg's father Reg Reid.

Helene and Peter also visited Jenny VK5ANW, and Meg and David on their way out of Adelaide, and Meg and David were visited by Helene and Jim when they passed through a week or so later.

June VK4SJ and Doug VK4BP spent an evening with Christine and Geoff a couple of weeks earlier before leaving Adelaide to go round the coast and home. They have a marvellous photographic record of their recent overseas trip, during which they met amateurs all around the world and visited both the RSGB and ARRL headquarters. They describe these as "amazing places", but then US has over 500,000 amateurs and UK 70,000, compared to 17,000 in Australia.

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AMSAT Australia

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AMSAT Australia net:

Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- QRM.

AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia

GPO Box 2141

Adelaide SA 5001

MIR...Frequencies?

I must thank Eric VK2KUR for pointing out that the frequencies listed in the December 1996 column were reversed. I wish that was the end of the story. The frequencies listed were taken from an AMSAT News Service bulletin at the time of writing. By the time they appeared in print, it had been announced by IARU, as Eric correctly noted, that the frequencies were the reverse of those earlier advertised. After preparing this (February) column early due to a family commitment, another announcement has come along stating that they have been reversed AGAIN from 1 Jan 1997!

This latest change appears to have been at the request of the operators on board MIR. The changes have caused a lot of discussion and the problem is not yet resolved. The old frequency of 145.550 MHz used by MIR crews for many years was also contrary to most bandplans and it caused trouble in countries where it was traditionally used for simplex terrestrial comms. The new frequency pair was decided upon at a Region

1 IARU conference and was implemented immediately by the operators on MIR. However, the frequencies violated the Regions 2 and 3 band plans.

Discussions are still continuing in the hope of resolving the problem. There may be no easy solution. The planned International Space Station (ISS) will provide an unsurpassed opportunity for a permanent space platform for amateur radio. It will be essential to get a frequency plan in place before ISS becomes a reality. So, here goes again. To the best of my knowledge at the time of writing, as of 1 January 1997 MIR operations will take place on 145.200 MHz uplink and 145.800 MHz downlink. This apparently applies to packet as well as voice FM (I hope).

Digisat Woes

The digisats KO-23 and KO-25 have been having problems over the new year period. KO-23's problems have centred around overheating caused by an extended period in which it encountered almost continuous sunshine. The telemetry indicated that the battery was being charged nearly all the time and the temperatures built up to go off scale at over 40 degrees C. One result was that the downlink frequency was varying quite significantly. I estimated that, at one stage in late December, it was -8.5 kHz from nominal. That was the largest frequency change I observed. The next day it was back to nominal. Thank goodness for WiSP. The program has a feature that allows you to temporarily change the frequencies for the duration of a single pass.

KO-25 suffered a period where the uplink was blocked while new software was loaded and tested. After just a few days, it failed again with no downlink data being transmitted. During this time UO-22 was heavily loaded as it had to cope with all the normal packet gateway traffic as well as the activity that would ordinarily have been taken by KO-23 and KO-25. At the time of writing all three are performing well.

The overheating problem illustrates the difficulty of selecting the most appropriate orbit. The high inclination orbit of KO-23 maximises access time for stations in low to mid latitudes but, at certain times of the year, it results in long periods when the satellite is orbiting in permanent sunshine and sometimes lengthy periods of eclipse. These problems are not so severe for low earth satellites in near polar orbits.

Now for Some Good News!

After all that gloom and doom let's look at the good news for the month. The UoSAT-12 mission. This is a joint effort by Surrey Satellite Technology and Nanyang Technological University (NTU) in Singapore. It is a "Technology Transfer" project and contains an amateur transponder as well as scientific and research packages. Called "Merlion" it is due for launch into an inclined low earth orbit in mid 1997.

Even though it hasn't been launched, it has already had a significant impact in Singapore. NTU has worked closely with the Singapore Amateur Radio Transmitting Society during the design and construction of the satellite. This has had two important spin-offs. Many NTU staff have been encouraged to take out amateur radio licences and, perhaps even more importantly, the installation of the ground station at NTU has resulted in the relaxation of rules governing use of the VHF and UHF amateur satellite bands in Singapore. External antennas are also now allowed on these frequencies. This is an excellent result. A major break-through for Singapore operators and augers well for the future of amateur radio satellite activity in Singapore.

Merlion will have a 1.6 MHz wide non-inverting "L" band to "S" band analog transponder. Now would be a good time to dust off the 1296 MHz and 2.4 GHz gear. "S" band downlink power is planned to be seven watts into a LHCP quadrifilar helix designed to radiate maximum lobes at 30 degrees to the satellite axis. The axial radiation is about 10 dB down from this and it should result in almost constant signal strength as the satellite goes overhead.

Uplink on "L" band will need to be RHCP. This will be an ideal project for a small ground station tracking antenna system consisting of a LHCP helix or small dish with RHCP feed for downlink and a RHCP helix for uplink.

Let's all wish Merlion a successful launch and commissioning. It will be great to hear our Singapore friends operating on their own OSCAR. Given a reasonably high orbit, there should be plenty of mutual operating windows into VK.

P3D Report

The satellite continues to pass the various stringent tests that it must undergo to get the OK for launch. The dynamic vibration resonance tests were successful. These tests are conducted to see if there are any critical resonant frequencies which would cause mechanical vibration to become extreme and possibly destructive.

A mechanical vibrator is clamped to the structure and the frequency of vibration

varied to pin-point any dangerous resonances. P3D came in well within NASA specifications. The next critical test is the static load test. This has nothing to do with "static" as in radio noise. The entire assembly including support structures must be subjected to a static (steady) load of nearly five tonnes. This is to simulate the stresses during launch.

OSCAR Operations Report

(From AMSAT News Service and other sources.)

MIR: Frequency problems seem to be resolved, at least in the short term.

SAFEX: The 70 cm repeater on MIR is up and running. Downlink on 437.950 MHz and uplink on 435.750 MHz using 141.3 Hz tone access. A note of caution. If you have trouble holding the repeater open it is probably due to the rather severe Doppler shift changes encountered on 70 cm. It is doubly difficult in the case of MIR as it moves so quickly due to its low orbit. I'll devote some space next month to a couple of methods of overcoming this difficulty.

RS-10: Operating normally.

RS-12: Is giving extremely good downlink signals on 2 metres. In this period of poor propagation on 15 m, the T-mode is providing very easy access to the satellite.

AO-10: Good signals. Some QSB and very little activity. The blon/blat was calculated to be about -125/5 a year or so ago. It is quite a while since new kep elements appeared for this satellite but the orbit doesn't shift much and the latest keps should be OK but could be unreliable around perigee. Remember, no sun...no AO-10. Use your tracking program to see if AO-10 is in sunlight and listen to the beacon for signs of FM-ing.

UO-11: Good, steady signals have been received from OSCAR-11 on 145.826 MHz. The 2.4 GHz beacon is reported to be down in power output and hence signal level. I haven't fired up my 2.4 GHz gear since moving QTH. Can someone confirm this please?

RS-15: Operating normally.

AO-16: Operating normally.

DO-17: (DOVE) Still having problems with software and hardware. Some time since I had reports of the 2.4 GHz beacon. Once again I'd appreciate a report.

WO-18: Is reported as broadcasting telemetry frames every 15 seconds on 435.882 MHz. I've listened and heard nothing.

LO-19: Operating normally.

FO-20: Operating normally. Strong downlink signal not much activity.

UO-22: Operating normally.

KO-23: Operating normally.

KO-25: Operating normally.

IO-26: Operating normally.

AO-27: Only switched to amateur frequencies at weekends and then only over Northern hemisphere.

FO-29: Operation normal.

MO-30: The only report I have to hand is that this satellite suffered damage to the command receiver on launch and that it cannot be commanded and will therefore probably never be put into operation. Does any one have any other information, either confirming this or to the contrary?

Preliminary Data for the New RS Satellite

The following information came over on the KO-25 satellite the morning I prepared this column.

Preliminary data for the new RS satellite, RS16:

Uplink = 145.915 - 145.948 MHz

Downlink = 29.415 - 29.448 MHz

Beacons = 29.408, 29.451 MHz

Pwr 29 MHz Down = 1.2 W/4 W

Beacon 1 = 435.504 MHz

Beacon 2 = 435.548 MHz

Pwr 435 MHz Beacons = 1.6 W

The Launch will be from the new far-eastern cosmodrome in Svobodny Town. The rocket is "Zeya". H = 500-600 km.

Next Month

Frequencies in Space...what's the problem? Coping with fast changing Doppler shift.

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QSP News

1996 Amateur Radio Magazine Awards

After considerable discussion at their January 1997 meeting, the Publications Committee decided to award the **Technical Award** (for the best technical article(s) for the year) to **Drew Diamond VK3XU**, three of whose articles were published, all being uniformly excellent.

The **Higginbotham Award** (for service to amateur radio generally, not necessarily to the magazine) was made to **Will McGhie VK6UU** whose **Repeater Link** column has covered a wide range of topics in addition to repeaters.

Congratulations to Drew and Will who will each receive a cheque for \$100.

Awards

John Kelleher VK3DP - Federal Awards Manager*

Prospects for the future in DX are beginning to look bright. Not as bright as I would like, however, but good enough to prove that reasonable contacts can be achieved with a little diligence, and co-operation with controllers of established DX Nets. General indications are that the "figures" that we all rely upon for propagation are shaping up just a little better.

Sunspot numbers are beginning to rise, if only gradually, and the A and K indexes are beginning to fall. My estimation is that no really significant change will take place until mid-year 1997.

The Zone 29 Award

This award is offered by the West Australian Division of the Wireless Institute of Australia to all licensed radio amateurs and SWLs throughout the world.

To qualify for this award, the following conditions must be satisfied:

1. Establishment of two-way communication with any 25 different amateur stations located in CQ Zone 29. Only contacts made after 0800 UTC on 1 January 1952 are considered to be valid.

2. The total of 25 different stations may be obtained by operation on one or more of the authorised amateur bands as applicable at the time of the claimed contact. Cross band contacts will not be accepted.

3. Any type of emission as permitted by the local licensing authorities at the time of the claimed contact(s) may be used. Cross-mode contacts will not be accepted.

4. Minimum acceptable exchange of signal reports shall be: for phone, readability 3 and strength 3; and for CW, readability 3, strength 3 and tone 8.

5. Applications containing multi-band and multi-mode valid contacts will be accepted but the award will be issued with no endorsement(s).

6. Special endorsements will be displayed on the Award Certificate, where applicable, when all valid contacts fulfil the following conditions: (a) single band - multi mode; (b) single band - all phone; (c) single band - all CW; (d) all Phone - multi band; (e) all CW - multi band; and (f) other special endorsements as considered to be outstanding and unique.

7. SWL applications will be accepted and the Award certificate issued, with appropriate endorsements as applicable, when all conditions as listed above are complied with.

8. QSL cards are not required as proof of valid contacts, but the application must show that the log extracts have been examined and verified by two other radio amateurs or the Awards Manager of the applicant's IARU affiliated radio Society. A simple declaration that the applicant has conformed to all

licensing regulations as related to his/her operation is mandatory.

9. Fees for the Award should be in the region of \$AUS4.00 or eight IRCs for overseas stations (I am estimating these fees as my information copy is some years old).

10. Essential information required should include: callsign of station worked/heard; band (MHz) and mode used; date and time (UTC); and RS(T) received and RS(T) given. Standard-form application sheets are available at no cost from the address below, or the applicant may use his/her own as desired.

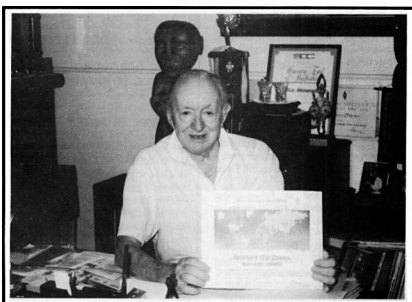
11. Applications should be addressed to: Awards Manager Zone 29 Award, WIA (VK6 Division), PO Box 10, West Perth WA 6872.

A Notable Success Story

Subsequent to the publication of RSGB Awards in 1993, I have received a very happy letter from a well known Queensland amateur, Alan Shawsmith VK4SS, in which he states that he has received the WITUZ plaque and WITUZ Supreme Certificate for working all 75 ITU Zones.

Outside the western European area, Alan is the FIRST in the world to claim Supreme WITUZ. He is now in the process of sending off his application for 5BITUZ, as he says, "to put the icing on the cake".

The RSGB HF Awards Manager, Fred Hanscombe, G4BWP whose address is: Sandholm, Bridge End Road Red Lodge, Bury St Edmunds Suffolk IP28 8LQ, United Kingdom, has requested that publicity be given to the handsome list of RSGB Awards which are available world wide. This I will do later this year.



Al Shawsmith VK4SS with his WITUZ Supreme certificate for working all 75 ITU Zones.

WIA DXCC

Phone

Honour Roll

Callsign	Countries
VK5MS	328/381
VK5WO	328/360
VK6LK	328/352
VK3QI	328/341
VK4OH	328/334
VK5QW	328/333
VK4LC	327/373
VK2FGI	327/332
VK3DYL	327/332
VK6RU	326/380
VK4KS	326/372
VK6HD	326/350
VK4RF	326/344
VK3AKK	326/337
VK1ZL	326/331
VK5XN	325/345
VK4UA	325/338
VK6NE	322/337
VK5EE	322/327
VK7BC	320/329
VK3AMK	319/337
VK2AVZ	319/325

VK4SJ 247/	VK3XB 315/349	VK3CYL 283/290	VK7TS 229/230	VK2NO 158/	VE7BS 106/107
VK2PU 244/247	General Listing	VK4CY 280/283	VK2CWS 228/230	VK2CXC 150/152	VK3OZ 104/105
VK6YF 238/241	VK5WO 307/322	VK3VQ 274/291	VK6APW 223/224	VK6LC 142/144	VK3COR 102/104
VK4CY 237/238	VK4RF 306/332	VK3UJ 272/274	VK4DA 222/224	VK2SPS 140/142	VK3VB 102/104
VK2CKW 234/237	VK3KS 301/328	VK5BO 264/301	WA5VGI 216/218	VK4NJQ 133/139	SM7WF 101/
PS7AB 233/237	VK6RU 275/319	VK3DQ 262/	VK2VFT 202/205	VK4EZ 129/138	RTTY
VK3DS 226/336	VK3JJ 267/291	TF5BW 260/264	VK6MK 194/196	YB8HG 127/129	Callsign Countries
VK2ETM 226/227	VK3AKK 267/272	VK4LV 252/259	VK3DNC 185/187	VK7HV 114/117	VK3EBP 210/212
VK5IE 219/221	VK3DQ 245/	VK3CIM 252/255	VK5GZ 182/184	VK5BWW 111/112	VK2BQS 115/117
VK5BO 218/222	VK4LV 235/242	VK2ETM 239/240	VK2BQS 176/179		
VK3CIM 218/221	VK7BC 234/243	VK5UO 238/241	PR7CPK 174/175		
VK3UJ 217/117	VK3DP 234/237	VK4ICU 238/240	VK6NV 165/166		
VK6APW 216/217	VK2CWS 222/224	VK4XJ 233/249	VK4CHB 160/162		
VK3DD 214/217	VK4DA 221/223				
VK4ICU 211/213	VK4DP 205/216				
VK4LV 210/212	VK3CIM 202/203				
VK7TS 210/211	VK4OD 192/195				
VK4XJ 204/216	VK6PY 191/194				
VK3DVT 201/203	VK6MK 188/190				
ON6DP 200/202	VK4ICU 183/				
VK4KRP 199/201	VK6HW 179/182				
VK2VFT 198/201	VK5GZ 172/174				
VK4DDJ 198/198	VK4CY 172/				
VK4AU 190/190	VK5BO 159/184				
VK6BQN 186/190	VK3DNC 154/157				
VK4BAY 177/179	VK5UO 154/155				
KA1TFU 176/179	VK4XJ 150/163				
VK4IL 176/	VK7TS 147/				
WA1MKS 171/	VK4UA 143/155				
VK2BQS 162/165	EA6AAK 138/				
VK2NO 157/	VK7DQ 137/138				
VK4IT 153/154	VK4KS 126/134				
VK4CHB 152/153	VK4AAR 125/127				
7J1AAL 149/150	VK2TB 123/125				
VK4ARB 149/150	VK3AGW 119/120				
VK4DMP 147/148	VK4CMY 117/119				
VK3DNC 141/142	VK5BWW 110/111				
VK3DQ 141/	VK4DV 109/115				
VK2SPS 139/141	OK1FED 109/				
VK6LC 139/140	VK5QJ 107/109				
VK2EQ 139/	VK2FYM 106/108				
VK6LG 135/135	VK8KV 102/103				
T12YLL 129/	VK2CXC 101/103				
VK4EJ 125/127					
LU5EWO 125/					
SM6PRX 122/126	Open				
VK3TI 122/125	Honour Roll				
VK7WD 115/116	Callsign Countries				
VK3BRZ 114/116	VK5WO 328/364				
VK4VIS 113/115	VK3QJ 328/342				
VK4NJQ 111/115	VK7BC 328/336				
VK6NV 111/113	VK5QW 328/332				
C2IDJ 109/	VK6RU 326/380				
VK5GZ 108/110	VK4KS 326/371				
VK4LV 105/	VK4RF 326/361				
VK5UO 104/106	VK6HD 326/351				
N4JED 104/105	VK3AKK 326/337				
VK3EHP 103/105	VK4UA 325/340				
JN6MIC 103/104	VK3JA 324/371				
VK4BJE 102/104	VK3AMK 322/340				
C2INJ 102/	VK3OT 318/330				
JH3OHO 101/103	VK3XB 317/346				
VK2CMV 100/102	VK4AAR 315/318				
VK5CJE 100/102	General Listing				
VK6APH 100/101	VK3JJ 311/339				
	VK4DP 310/323				
	VK6PY 309/316				
	VK6RO 308/313				
	VK3DP 302/306				
	VK4BG 294/312				
	VK4OD 287/290				
CW					
Honour Roll					
Callsign Countries					
VK3QJ 328/339					
VK6HD 324/344					

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WIA News

Intruder Watch Pays Off - Again

An erstwhile intruder in the exclusive segment of the 40 metre band has been cleared, thanks to the efforts of Col Robertson VK4AKX, of Brisbane. Col had been reporting a broadcast station signal on 7080 kHz over some time. With a little detective work, he identified it as a "spur" from a shortwave broadcast located in Chinese Taipei (Taiwan) which has a transmission on 7105 kHz, in the band segment amateurs share with shortwave broadcasters.

Figuring the station personnel may be unaware of the spurious transmission, Col tried the direct approach and wrote to the station engineer, pointing out his reception of the errant signal on 7080 kHz. Col received friendly cooperation from the station's staff, some adjustments were made in due course and the problem was cleared up. Result, another "intruder" gone. Col remarked to the VK4 International Amateur Radio Union Monitoring Service (Intruder Watch) Co-ordinator, Tom Walker VK4BTW, "If only some of the more persistent poor transmitters were as helpful." (Item courtesy of QTC, monthly newsletter of the WIA Qld Division).

Big Things Forecast For Next Solar Peak

A collaboration of 12 scientists from 10 government agencies around the world has found "reasonable consensus" from a survey of forecasts for the size and timing of the next solar peak (Cycle 23) that it will be "a large solar cycle with a smoothed sunspot maximum of 160 ... (which) will most likely peak in early 2000."

Co-ordinated by the US National Oceanic and Atmospheric Agency (NOAA) Space Environment Centre, with support from the National Aeronautics and Space Agency (NASA) Office of Space Science, the effort was dubbed "The Solar Cycle 23

Project." Those collaborating included scientific representatives from Australia's IPS Radio and Space Services, along with others from Germany, the United Kingdom and the US.

The forecast sunspot maximum is comparable to the last (Cycle 22), which peaked over 1989-90, but not as large as Cycle 19, which peaked in 1957 at a sunspot maximum of almost 200.

The variation in forecasts put the maximum smoothed sunspot count for the peak at 190 and the minimum count at 130, while the range in date of the smoothed cycle peak is from January 1999 at the earliest to June 2001 at the latest.

The Project panel advised that geomagnetic activity during the cycle would be much like that experienced in recent cycles, with average annual levels among the highest in the 128-year record of sunspot observations.

So there's good news and bad news for the peak of Cycle 23. Band conditions will be good to spectacular as a result of the expected high peak, but the HF bands will be "trashed" on occasions by severe geomagnetic storms - which bring enhanced conditions for world-wide 50 MHz DX and auroral propagation for the VHF bands. One man's trash is another's treasure, so to speak.

A host of fascinating information on the next solar cycle is available on the Internet, for those who have access. The Solar Cycle 23 Project panel findings can be found at <http://www.sec.noaa.gov/info/Cycle23.html> or <http://proton.ssa.noaa.gov:80/info/Cycle23.html>. Australia's IPS Radio and Space Services' Web site has a paper by Richard Thompson on *The Amplitude of Solar Cycle 23*, at www.ips.gov.au/papers/richard/outlook_23.html, and another on *Observed and Predicted Sunspot Numbers 1986-2006*, at www.ips.gov.au/papers/ssnpred.html.

Club Corner

"21 TODAY" for FAMPARC in 1997

Yes, 1997 will be a very special year for our club, the Frankston and Mornington Peninsula Amateur Radio Club, as we will be celebrating our 21st birthday.

Our first General meeting took place on Friday, 27 February 1976 and was enthusiastically opened by the then mayor of Frankston, Councillor Geoff Eastwood. The organisers had arranged for this to be held in the Frankston Technical College Staff room. Imagine their delight in seeing it packed to capacity with standing room only. We must have really filled a community need.

The first elected committee included Dennis Johnstone, President; Colin Fisher, Vice President; Earl Russell, Secretary; Mavis Russell, Assistant Secretary; and John Mathews, Treasurer with Robyn Johnstone and Arthur Woodward as Committee members. Arthur was appointed Social Secretary and Chris Edmonds (that well known amateur radio personality) as Publicity Officer. Several of those office bearers are now, unfortunately, silent keys, but we are hoping to have as many founding members and Club supporters as possible at the proposed celebratory functions.

It never ceases to amaze me how patterns evolve in apparently random events. FAMPARC started in a school staff room and, when it finally obtained its own club house, it was in the grounds of another school, St Leonards College, Patterson Lakes Campus. This setting is quite appropriate when you consider the continuing commitment the club has had to amateur radio training.

Our first course was run by Danny VK3NG in our founding year and this tradition has continued, with FAMPARC satisfying student needs from far and wide. 1996 was no exception with the current group doing very well in their examinations thanks to their hard work and the efforts of Peter VK3JPR and Peter VK3TQ (Peters seem particularly attracted to FAMPARC).

Any friends of FAMPARC who would like to take part in our celebration events, planned to start in February with a BBQ get-together, are cordially invited to do so. Details of these will be available on our packet bulletin board, WIA broadcasts, or by contacting Gerard on (03) 9587 0141.

Keith Forbes VK3ENR
FAMPARC Secretary

Summerland Amateur Radio Club

The 38th Annual General Meeting of the Summerland ARC is set down for Sunday, 9 February 1997 commencing at 2 pm in the clubrooms. All members and others interested are invited to attend.

Annual reports and election of officers will be the order of the day. Some office bearers will not be standing this year, so now is your chance to get involved in the running of your club. Remember, "you get the government you deserve!"

Be there and do your bit to support your club.

Refreshments will be available after the meeting. For more information check out the local BBS on VK2SRC-2, or contact John VK2FFO on 066 274 969 or Bert VK2HIV on 066 242 3239.

Graeme VK2GJ
Publicity Officer

Radio Amateur Old Timers Club

VK60TN

Early in 1984, the then committee of the RAOTC applied to the Dept of Communications (now Spectrum Management Agency) for the grant of a special club licence with the suffix OTC (Old Timers Club). The DOC replied in June 1984 that the suffix OTC was already allocated and invited us to choose an alternative group.

The club then requested OTN (Old Timers Net). This was granted to the club as a block to cover use in all states VK1 to VK9, based on VK3OTN in Melbourne. And so VK3OTN was born and, on various

occasions, the call prefixes VK1, VK5 and VK6 were used in addition to the regular use of VK3OTN.

In August 1996, some members in VK6 applied to the SMA for the allocation of VK60TN for use in their local RAOTC broadcasts. They were advised that the call could only be approved by Canberra and approval was unlikely.

So, in August, I visited Mr Peter Young, the Area Manager for Victoria, and submitted a series of documents regarding the original licence terms, requesting that they be confirmed. Mr Young agreed to submit this material to Canberra and did so. On 5 December we located some early correspondence between the club and the DOC which provided departmental officers' names and a file number. This information was passed to Mr Young the same day.

Mr Young was then able to ring me on 13 December to advise that, while we could no longer use the OTN suffix in all states on the one licence, the group would be reserved for allocation only to bona fide members of the radio amateurs Old Timers Club based in Melbourne and the call VK60TN would be licensed to Clem Patchett VK6CW. The new call was used for the first time on Monday, 13 January, with myself as VK3OTN exchanging greetings with Clem as VK60TN on 20 metres.

The club has expressed to Mr Peter Young and Mr Andrew McManus of the SMA, Melbourne our grateful thanks for their interest and assistance in this matter.

AGM and Luncheon

In Melbourne the usual combined luncheon and annual meeting will be held on Tuesday, 11 March at the Bentleigh Club in Yawla Street Bentleigh at 12.30 for 1 pm. The cost has not yet been determined, but will not be more than \$25. Visitors from other clubs will be welcome but firm bookings must be made with Arthur Evans VK3VQ no later than Friday, 7 March.

Our speaker on the day will be club member Phil Williams VK5NN, who has kindly agreed to come over especially for this meeting. Phil was one of the first to be trained in radar technology with the idea of going to England. Japan's entry into the war meant that he stayed with the RAAF where he served with distinction. As an electrical engineer by profession, Phil is keen to talk about the enormous contribution of the then electrical/electronics industry here in Australia to the war effort. Note the date in your diary now.

Allan Doble VK3AMD

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Radio magazine**

Contests

Peter Nesbit VK3APN - Federal Contest Coordinator*

Contest Calendar February - April 97

Feb 1/2	YU DX Contest	
Feb 8	Asia-Pacific CW Sprint	(Jan 97)
Feb 8/9	PACC CW/SSB DX Contest	(Jan 97)
Feb 8/9	Spanish RTTY Contest	(Jan 97)
Feb 15/16	ARRL DX CW Contest	(Jan 97)
Feb 21/23	CQ 160 Metre SSB Contest	(Dec 96)
Feb 22/23	Jock White Field Day (NZART)	
Feb 22/23	RSGB 7 MHz CW Contest	(Jan 97)
Feb 22/23	UBA (Belgium) CW DX Contest	(Dec 96)
Feb 22/23	REF (France) SSB DX Contest	(Jan 97)
Feb 23	High Speed CW Club Contest	(Jan 97)
Mar 1/2	ARRL DX SSB Contest	(Jan 97)
Mar 8/9	Commonwealth Contest	
Mar 14/15	160 m "Have A Go" Activity Period	
Mar 15/16	WIA John Moyle Field Day	
Mar 15/16	Bermuda Contest	
Mar 15/16	BARTG RTTY Contest	
Mar 15/16	YL-SSB Contest	
Mar 29/30	CQ WPX SSB Contest	
Apr 5/6	SP DX Contest	
Apr 11/13	JA DX High Band CW	
Apr 12/13	International HF Grid Square Contest	
Apr 12/13	EA DX Contest	
Apr 19	Australian Postcode Contest	
Apr 19/20	SARTG AMTOR Contest	
Apr 19/20	Israel DX Contest	
Apr 26/27	Helvetia DX Contest (Switzerland)	
Apr 26/27	SP RTTY Contest	

The rules shown in the December issue for the JA Low Band Contest held last month somehow got scrambled, and probably caused dreadful confusion to entrants. Ian VK3DID quickly got on the telephone and pointed out my error; however, by then it was too late to get a correction published in the January issue. This is the sort of risk created when contest organisers fail to send a copy of the original rules, which for some reason seems to happen with most Asian contests. Perhaps one of the entrants could request the organisers to add the WIA to their mailing list, when forwarding their log for the event. A copy of the results, when available, would also not go astray.

I was going to talk further about sprint contests this month, but time has absolutely run away so it will have to wait for another day. Many thanks to VK1PJ, VK3DID, VK3ZC, G3PJT, OE4BKU, VE2ZP, ZL1AAS, Radio Communications, CQ, and QST. Until next month, good contesting!

Jock White National Field Day (NZART)

0300-1200z Sat. 22 Feb and
1800-0300z Sun, 23 Feb

This contest is open to portable ZL stations, and

also to overseas stations. Both 80 and 40 m can be used, phone and CW. Cross-mode contacts are not permitted. Sections include: CW; phone; mixed mode; 80 m only; "natural" power; QRP max 5 W O/P. Exchange RS(T) plus serial number. ZLs will add their branch number.

This contest is divided into 18 one-hour periods, changing over on the hour. Stations can be contacted once per hourly period, per mode, per band. Note that two consecutive QSOs with the same station are not permitted under the following circumstances, unless five minutes have elapsed: (a) when changing modes but staying on the same band; (b) at the end of one period and the start of the next.

Score 10 points per QSO, and multiply by the total number of branches worked on phone and CW. Multipliers are counted separately on 80 and 40 m, and on phone and CW, ie the same multiplier can be counted up to four times. Separate log sheets are preferred for each period, except where periods contain only a few QSOs, in which case more than one can be on the same page, if they are ruled off.

The summary sheet should show all usual details, plus a summary of the QSOs and multipliers per band and mode. Send logs to: S White ZL2AHC, 19 Rossport Street, Johnsonville, Wellington, New Zealand to arrive by 28 March 1997.

60th Anniversary Commonwealth Contest

8-9 March 1997, Saturday 1200z to Sunday 1200z

The Commonwealth Contest promotes contacts between stations in the Commonwealth and Mandated Territories, and provides a relaxed environment for you to work some choice DX.

All bands from 80-10 m may be used, CW only. Sections are (a) Open; (b) Restricted, operation limited to a 12 hours maximum, with no more than eight hours operation on the Saturday. Off periods must be at least 60 minutes long, and clearly marked in the log. *This year the single band sections have been abolished, and all entries will be classed as multiband.*

Contacts may be made with any station using a Commonwealth prefix, except those within the entrant's own call area. Note that, in this contest, the entire UK counts as ONE call area. Exchange RST + serial number, and score five points per valid QSO plus a bonus of 20 points for each of the first three QSOs with each Commonwealth call area, on each band.

A number of Commonwealth Society HQ stations are expected to be active during the contest, and will send "HQ" after their serial number to identify themselves. Each HQ station counts as an additional call area, and entrants can contact their own HQ station for points and bonuses.

Separate logs and lists of bonuses are required for each band. Send these plus a summary sheet to: RSGB HF Contests Committee, c/o S Knowles



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DICK SMITH
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B 2798

G3UFY, 77 Besham Manor Road, Thornton Heath, Surrey, CR7 7AF, UK, postmarked by 7 April 1997.

The Senior Rose Bowl will be awarded to the overall leader, and the Junior Rose Bowl to the runner-up. Certificates of Merit will be awarded to the third-placed entrant overall, to the leading stations in each call area, and to the first three entrants in the restricted section. A Commonwealth Medal will also be awarded to the entrant in either section who, in the opinion of the Committee, has most improved his or her score, or contributed significantly to the contest over the years.

To encourage you to work as many different Commonwealth call areas on as many bands as possible, and to celebrate the 60th Anniversary contest, a special silver or gold 60th Anniversary Certificate, based on the original BERU Certificates awarded in the 1930s, will be awarded to every entrant contacting at least 50 or 60 band-call areas respectively. Entrants should note their claimed band-call area total on the Summary Sheet.

Finally, Bob Whelan's history of BERU "Reflections in a Rosebowl" is available from him for £15 plus postage (QTHR), and includes plenty of tips from leading stations over the years, including unique photographs from the 1930s to the present day.

The following call areas are recognised for the purpose of scoring:

A2, A3, AP, C2, C5, C6, C8/9, CY9, CY0, G/GB/GD/GI/GJ/GM/GO/GW (all one area), H4, J3, J6, J7, P2, S2, S7, T2, T3, T30, T31, T32, T33, T3, V2, V3, V4, V5, V8, VE1, VE2, VE3, VE4, VE5, VE6, VE7, VE8, VK1, VK2, VK3, VK4, VK5, VK6, VK7, VK8, VK9C, VK9L, VK9M, VK9N, VK9W, VK9X, VK0 (Heard Is), VK0 (Macquarie Is), VK0 (Antarctica), VO1, VO2, VP2E, VP2M, VP2V, VP5, VP8 (Falkland Is), VP8 (S Georgia), VP8 (S Sandwich Is), VP8 (S Shetland Is), VP8 (S Orkney Is), VP8 (Antarctica), VP9, VQ9, VR6, VS6/VR2 (Hong Kong), VU, VU4 (Andaman & Nicobar Is), VU7, VY1, Y1, Z2, ZB2, ZC4, ZD7, ZD8, ZD9, ZF, ZK1 (N Cook Is), ZK1 (S Cook Is), ZK2, ZK3, ZL0 or ZL (N.Z. reciprocal calls), ZL1, ZL2, ZL3, ZL4, ZL7, ZL8, ZL9, ZS1, ZS2, ZS3, ZS4, ZS5, ZS6, ZS8, ZB6/7, ZB8, ZB9, ZDA, V5, S84, 5H, 5N, 5W, 5X, 5Z, 6Y, 7P, 7Q, 8P, 8Q, 8R, 9G, 9H, 9J, 9L, 9M2, 9M6/8, 9M0, 9V, 9Y, GBSCC (RSGB HQ station), various other HQ stations.

If you hear a C9 or a TJ calling BERU, don't be surprised, as Mozambique and Cameroon have been members of the Commonwealth for over a year.

160 m "Have A Go" Activity Period

14-15 March, 0800-1400z both days

This yearly activity period is organised by the NZART, and is intended to encourage 160 m contacts between VK and ZL. It is not a contest, and no logs are required. The suggested calling frequency is 1840, followed by QSY. Note that ZLs can operate anywhere within the VK allocation.

CQ WPX Contest

SSB: 0000z Sat to 2400z Sun, 29-30 March
CW: 0000z Sat to 2400z Sun, 24-25 May

This contest is sponsored by *CQ Magazine*, and the objective is to contact as many stations worldwide as possible on 1.8-30 MHz (except 10, 18 & 24 MHz). Categories include: single operator (either single or all band), subdivided according to power (unrestricted, low power max 100 W OP, and QRPp max 5 W OP); and multioperator (either single or multi-transmitter, all band only). Single operator stations are where one person performs all operating, logging, and spotting functions. The use of DX spotting nets places the station in the multioperator single transmitter category. Multi-multi stations must have all transmitters located within a 500 m diameter circle or within the property limits of the licensee's address, whichever is greater. All antennas must be physically connected by wires to the station transmitters and receivers.

Exchange RS(T) plus a three digit number starting at 001. Continue to four digits if past 1000. Multi-transmitter stations must use separate numbers for each band. Score three points (14-30 MHz) or six points (1.8-7 MHz) for contacts with stations on different WAC continents, and one point (14-30 MHz) or two points (1.8-7 MHz) for contacts with stations within the same WAC boundary. Contacts with stations in the same country are permitted for multiplier credit but have zero point value.

The multiplier is the total number of prefixes worked on all bands (each prefix is counted once regardless of the number of different bands on which it is worked). A "prefix" is the unique letter/number combination forming either the first part of the callsign, or else the normal country identifier for stations using their home callsigns in another DXCC country. For example: N8, W8, AG8, Y22, Y23, HG7, HG73 are all separate prefixes. The prefix for both N8ABC/KH9 and KH9/N8ABC is KH9. KH6XXX operating from Ohio could sign /W8, /N8, /K8, or any other prefix authorised for that district. Portable designators without numbers will be assigned zero after the letter prefix, eg N8ABC/PA becomes N8ABC/PA0. Any calls without numbers will be assigned a zero after the first two letters, eg RAEM becomes RA0EM. Suffixes indicating maritime mobile, mobile, portable, alternate location, and licence class do not count as prefixes (eg /MM, /M, /P, /A, /E, /J). The final score is QSO points x multiplier.

Logs must show times in GMT, with breaks clearly marked. Show prefix multipliers only the first time they are worked. Logs must be checked for duplicates, correct points, and prefix multipliers. Logs must be accompanied by a sorted alphanumeric list of prefix multipliers, and a summary sheet showing call, name, address, category, power, scoring information, and a signed declaration that all contest rules and radio regulations were observed. Logs may also be submitted on 3 1/2" or 5 1/4" DOS disk in ASCII format (.BIN, .RES, .DBF, .WKS also acceptable), providing a sorted multiplier file and a paper summary sheet are included. Send logs postmarked by 9 May (SSB) or 11 July (CW) to: WPX Contest, 76 N Broadway, Hicksville, NY 11801, USA. Indicate SSB or CW on envelope.

A comprehensive range of trophies and plaques is offered, and certificates will be awarded to the highest scoring station in each category, country

and VK call area. To be eligible for awards, single operator stations must show at least 12 hours operation, and multioperator at least 24 hours operation. Single band entries showing points claimed for more than one band will be judged as multiband unless otherwise specified. Where returns justify, 2nd and 3rd place awards will also be made.

Results of 1996 Canada Day Contest

(call/band/QSOs/multi/score)
VK4JR * 20 m 26 8 1616

1997 JOHN MOYLE CONTEST

Presented by Phil VK1PJ

Well, once again those who enjoy a weekend in the bush should be planning for this year's John Moyle Field Day. Apart from a minor change to the multioperator section, the rules are the same as last year, including the retention of the six and 24 hour sections.

If anyone wishes to contact me privately to discuss rules, etc, my home phone number is 06 292 3260, and my address is as shown in the Log Submission section below. I wish all entrants good luck, and look forward to seeing you on air during the contest!

Overview

1. The aim is to encourage and provide familiarisation with portable operation, and provide training for emergency situations. The rules are therefore designed to encourage field operation.

2. The contest takes place on the 3rd weekend in March each year, and this year (1997) runs from 0100 UTC Saturday to 0059 UTC Sunday, 15-16 March.

3. The contest is open to all VK, ZL and P2 stations. Other stations are welcome to participate, but can only claim points for contacts with VK, ZL and P2 stations.

4. Single operator entries shall consist of one choice from each of the following (eg six hour, portable, phone, VHF/UHF):

- a. 24 or six hour;
- b. Portable, Home, or Receive;
- c. Phone, CW, or Open mode;
- d. HF, VHF/UHF or All Band.

5. To be eligible in the multioperator section, multioperator entries must be portable, all mode, and consist of one choice from each of the following:

- a. 24 or six hour;
- b. HF, VHF/UHF or All Band.

Scoring

6. Home stations for all sections shall score:
a. Two points per QSO with each portable station;

b. One point per QSO with other home stations.

7. Portable HF stations shall score two points per QSO.

8. Portable stations shall score the following on 6m:

- a. 0-49 km, two points per QSO;
- b. 50-99 km, 10 points per QSO;
- c. 100-149 km 20 points per QSO;
- d. 150-199 km 30 points per QSO;
- e. 200-499 km 50 points per QSO;
- f. 500 km and greater, two points per QSO.

9. Portable stations shall score the following on 144 MHz and higher:

- a. 0 to 49 km, two points per QSO;
- b. 50 to 99 km, 10 points per QSO;
- c. 100 to 149 km, 20 points per QSO;
- d. 150 km and greater, 30 points per QSO.

10. For each VHF/UHF QSO where more than two points is claimed, either the latitude and longitude of the station contacted or other satisfactory proof of distance must be supplied.

Log Submission

11. Logs must be accompanied by a summary sheet showing: callsign, name, mailing address, section entered, number of contacts, claimed score, location of the station during the contest, and equipment used. For multioperator stations, the callsigns and signatures of all operators should be included. If any VHF/UHF QSOs have been made which qualify for more than two points, the latitude and longitude of the station during the contest must be included.

12. The summary sheet must include the following declaration signed by the operator, or in the case of a multiple operator station, one of the licensed station operators: *"I hereby declare that this station was operated in accordance with the rules and spirit of the contest"*.

13. Logs must be postmarked no later than 25 April 1997, and forwarded to: John Moyle Contest Manager, 33 Willoughby Cres, Gilmore, ACT 2905, Australia. An ASCII text copy on a MS-DOS floppy disc would be most helpful, with the following alternative formats also acceptable: Wordstar, Word, WordPerfect, dBase3 & 4, Lotus 123.

Certificates and Trophy

14. At the discretion of the Contest Manager, certificates will be awarded to the winners of each portable section. Note that entrants in a 24 hour section are ineligible for awards in a six hour section.

15. The Australian station with the highest CW score will be awarded the President's Cup, a perpetual trophy held at the Executive Office, and will receive an individually inscribed wall plaque as permanent recognition.

Disqualification

16. General WIA contest disqualification criteria, as published in *Amateur Radio* from time to time, applies to entries in this contest. Logs which are illegible or excessively untidy are also liable to be disqualified.

Definitions

17. A portable station comprises field equipment operating from a power source independent of any permanent facilities, eg batteries, portable generator, solar power, wind power.

18. All equipment comprising the portable station must be located within an 800 m diameter circle.

19. A single operator station is where one person performs all operating, logging, and spotting functions.

20. A single operator may only use a callsign of which he/she is the official holder. A single operator may not use a callsign belonging to any group, club or organisation for which he/she is a sponsor except as part of a multioperator entry.

21. A multioperator station is where more than

one person operates, checks for duplicates, keeps the log, performs spotting, etc.

22. A multioperator station may use only one callsign during the contest.

23. Multioperator stations may only use one transmitter on a given band at any one time, regardless of the mode in use.

24. Multioperator stations must use a separate log for each band.

25. A station operated by a club, group, or organisation will be considered to be multioperator by default.

26. None of the portable field equipment may be erected on the site earlier than 24 hours before the beginning of the contest.

27. Single operator stations may receive moderate assistance prior to and during the contest, except for operating, logging and spotting. The practice of clubs or groups providing massive logistic support to a single operator is, however, totally against the spirit of the contest. Offenders will be disqualified, and at the discretion of the manager, may be banned from further participation in the contest for a period of up to three years.

28. Phone includes SSB, AM and FM.

29. CW includes CW, RTTY, and packet.

30. It is not expected that any other modes will be used in the contest, but if they are, they shall be classed as CW.

31. All amateur bands may be used except 10, 18 and 24 MHz. VHF/UHF means all amateur bands above 30 MHz.

32. Cross-band, cross-mode and contacts made via repeaters are not permitted for contest credit. However, repeaters may be used to arrange a contact on another frequency where a repeater is not used for the contact.

33. Portable stations may make repeat contacts and claim the appropriate points providing that at least three hours have elapsed since the previous valid contact with that station on the same band and mode.

34. Home stations may not claim points for repeat contacts.

35. Stations must exchange ciphers comprising RS(T) plus a three digit number commencing at 001 and incrementing by one for each contact.

36. Portable stations shall add the letter "P" to their own cipher, eg 59001P.

37. Multioperator stations are to commence each band with 001.

38. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for Home Stations, unless the receiving station is portable.

39. The practice of commencing operation and later selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest, and shall result in disqualification. The period of operation commences with the first contact on any band or mode, and finishes either six or 24 hours later.

*PO Box 2175, Caulfield Junction, VIC 3175

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Divisional Notes

Forward Bias - VK1 Notes

Peter Parker VK1PK

VK1 Meetings Same Venue, Different Room

The VK1 Division is now holding its general meetings in a different part of the Griffin Centre. Instead of meeting on the top floor, we now meet on the ground floor (Room 1). The new room is nearer Bunda Street, just up from the zebra crossing. The change should be popular with our older members, and others who have trouble climbing the stairs. Another benefit is that, if we hold a junk sale or equipment demonstration, we will no longer have to carry heavy loads up two flights of stairs.

AGM This Month

This year's Annual General Meeting of the WIA (ACT Division) will take place at 8 pm on Monday, February 24 at the Griffin Centre, Civic. Several committee members will not be re-nominating and volunteers are needed to fill several key positions. If you have thought about becoming involved in the running of the Division, 1997 could be the year for you.

Division Receives Yagi Donation

Last month you read that Eric VK1EP was the winner of the Chirnside Yagi in the Division's raffle. Eric has since informed us that as he already has a HF beam and the Chirnside was surplus to his requirements. December's Committee meeting heard that Eric has donated his prize back to the Division, so that it can be used for further fund raising. We thank Eric for his generous gesture. The antenna will be auctioned immediately prior to this month's AGM.

VK2 Notes

Peter Kloppenburg VK2CPK

Council members witnessed an interesting switch between the respective positions of President and Vice-President at the December meeting of the Divisional Council. Our President, Michael Corbin VK2YC, had decided to take a step back from the actual running of the Division. His recent move to the South Coast near Batemans Bay and his program of property development there, were factors that prevented him from attending various meetings and conferences in Sydney, and be on call for providing advice and support to Divisional staff, Councillors and Members.

Michael steered the ship of WIA state through some very troubled waters over the last three years while gaining trust and cooperation from those members who take an active interest in the well-being of the Division. We thank Michael for using his extensive political management skills, and his time, to make the Division operate effectively and efficiently again. Our new president, Peter Jensen VK2AQJ, will hold the position until the AGM in April '97.

The scheduled Council meeting was not held on the second Friday of December. Because the Division had organised a Christmas party for members on the following Saturday afternoon, it was thought prudent to hold the Council meeting late that morning, thereby mixing business with pleasure for the benefit of members and Councillors alike.

VK6 Notes

John R Morgan VK6NT

Notice of Annual General Meeting

It is hereby notified that the Annual General Meeting of the Wireless Institute of Australia (Western Australian Division) Inc will be held on Tuesday, 15 April 1997 following the General Meeting which commences at 8 pm. The meeting will be held in the Board Room, 3rd Floor, CWA House, 1174 Hay Street, West Perth. The agenda will be:

1. Consideration of the Council's annual report
2. Consideration of the financial report
3. Consideration of other reports
4. Election of office-bearers (President, Vice President, and seven other Councillors)
5. Election of two Auditors
6. Appointment of a Patron
7. General business which has been duly notified.

Notices of Motion for the AGM must be received by the Secretary not less than 42 days prior to the meeting (ie by 4 March 1997), and must be signed by at least three members. The Secretary's postal address is: PO Box 10, West Perth WA 6872.

Nominations of candidates for election to Council must be received by the Secretary, in writing, not less than 42 days prior to the meeting (ie by 4 March 1997), with an intimation that the candidate is willing to act. A candidate may submit a statement, not exceeding 200 words, outlining his or her

experience and case for election. Each nomination shall be signed by two members proposing the candidate. Candidates must possess a current amateur licence.

Any financial member who is entitled to vote may appoint a proxy, who must also be a financial member who is entitled to vote, to speak and vote on his or her behalf. Written notice of such proxy must be received by the Secretary prior to the meeting, and be in the following form:

I (full name), a member of the Institute, hereby appoint (full name), also a member of the Institute, to act for me as my proxy, and in my name to do all things which I myself being present could do at the meeting of the Institute held on 15 April 1997.

Signed:

Witness:

Date:

Divisional Meetings

General Meetings are held on the third Tuesday of each month in the Board Room, 3rd Floor, CWA House, 1174 Hay Street, West Perth, commencing at 8 pm. Usually, there is no meeting in December. All interested persons (members and non-members, licensed or listener) are invited to attend, and will be overwhelmed by the free coffee and biscuits.

WA Repeater Group

As the VK6WIA news broadcast was in recess on the two Sundays following Christmas, the Committee decided to move the WARG Net (VK6RRG) from its usual 1030 time-slot on the VK6RLM repeater (146.750 MHz) to the normally-occupied VK6RAP machine (146.700 MHz), and to activate the links to the "country network" so that listeners outside Perth could listen-in.

At the time of writing, it is too soon to say whether the experiment was successful, but it was clear that many stations on the linked repeaters did not realise that the links are one-way only, since they were designed to relay the VK6WIA broadcasts, and that, therefore, only stations transmitting directly into VK6RAP (146.700 MHz) could take part in the discussions. Your thoughts and opinions are sought.

If You Have Material ...

Material for inclusion in this column may be sent to VK6NT @ VK6ZSE.#PER.#WA. AUS.OC, or to PO Box 48, Beverley WA 6304, or via telephone on (09) 291-8275.

"QRM" News from the Tasmanian Division

Robin L Harwood VK7RH

It is with deep regret that we announce the passing of another old-timer, Bill Tanner

VK7TE, who passed away on 10 December. Bill had been active until about 12 months ago but increasing ill health curtailed his activity. He was one of the studio technicians at the ABC Radio 7NT when the studios were next to the Princess Theatre in Brisbane Street, Launceston. He was actively involved with the Deviot Sailing Squadron in recent years. We extend our sympathies to Bill's family and friends. Vale VK7TE.

This month sees each branch conduct their Annual General Meetings. Nominations have closed for positions. There will be a report in the April column with the results.

The Divisional Annual General Meeting will be held on 22 March 1997 at the Activity Centre, Queen's Domain, Hobart. It is scheduled to commence at 1400 hours Eastern Daylight Time. All notices of motion should be in the hand of the Public Officer 28 days prior to that date; that is no later than Friday, 21 March at 1700 hours EDT. Nominations for Divisional Council, as stipulated by the Articles of Association, must be lodged 21 days prior, that is Friday, 28 February at 1700 hours EDT. To be eligible to stand, the proposers and seconders, plus the nominees, must be current financial members of the Tasmanian Division. Nomination forms are available from the Divisional Public Officer.

There are eight vacancies on Divisional Council. If there are more than eight candidates nominating, an election will be needed. All current financial members, with the exception of associate members, will then receive a postal ballot paper which is returnable to the Divisional Postal address or handed in on the day. A reminder that the postal address of the Tasmanian Division is 5 Helen Street, Newstead, TAS 7250.

Meetings for the month of February are: Divisional Council on Saturday, 1 February 10.30 am to be held in the NW Branch (the venue will be announced over the VK7WI broadcast); Southern Branch on Wednesday, 5 February 1997 at the Domain Activity Centre commencing at 2000 EDT; Northwestern Branch on Tuesday, 11 February 1997 at the Penguin High School, Dial Road, to commence at 1945 hours EDT; and the Northern Branch on Wednesday, 12 February 1997 at the Launceston College of TAFE, Alanvale campus, Block "C" to commence at 1930 hours EDT.

Members and friends of the Southern Branch held a barbecue at the Domain Activity Centre on New Year's Day and many New Year's resolutions were shared. Over 30 attended, which was some achievement considering it was right in the middle of a mini-heatwave. Fortunately, a big beach umbrella was provided to give some shade.

The Northern Branch held an informal get-together at Scamander to which all interested amateurs and SWLs were invited. Many stayed over the weekend to sample the wonderful sun-drenched East coast. The Northwestern branch held their regular monthly meeting at the Penguin High School on Tuesday, 14 January.

Repeater Two, VK7RHT, has now been relocated to Guy Fawkes Hill from Mount Wellington. The last transmission from the

old site occurred on Sunday, 12 January and the site closed down after the VK7WI broadcast. It is not known if it will be possible to re-open from Mount Wellington in the future. However, the old site had some serious limitations, mainly due to the large amounts of RF generated at the summit plus the difficulty in maintaining the antennas in winter time. The old site had been operational for 25 years.

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Education Notes

Brenda M Edmonds VK3KT* Federal Education Coordinator

Greetings and good wishes for 1997 to all readers.

I had hoped to be able to tell you by now that the new Regulations brochures are in production and that WIA Exam Service will be examining on the revised regulations as from a date in the near future. However, we are not yet quite to that point, although the prospects are improving.

We were told that the brochures will be available "early in the new year" but I do not have any estimated date. It appears that the format will be changed, possibly returning to the style of the old "Amateur Operators Handbook" with all the material in one publication. Those who have tried to help students with the regulations will be pleased if this is done. The separate Technical Licence Specifications (TLLSs) have been dropped, being replaced by a Licence Conditions Determination (LCD). This provides all the operating conditions information which was at the start of each TLS, followed by the specific bands, power and emission modes for each grade of licence.

At the time of writing this, the WIA is negotiating the content and format of the Regulations examination syllabus, which is to be included for the first time, and trying to finalise the modifications which we have proposed to the theory syllabuses. The Novice syllabus, in particular, has had to be enlarged to cover the increased privileges which the Novices gained at the revision of the Regulations.

The draft Regulations syllabus, as proposed by the SMA, places a stronger emphasis on operating conditions, and less on operating procedures than is currently the case. It also includes reference to knowledge of parts of the Radiocommunications Act and some ITU Regulations relating to amateur radio. This is in order to align the syllabus with those from other countries. The WIA

will be making every effort to ensure that the difficulty of the examination is not increased by changes to the format, and that the wording of the final version is as simple and clear as possible.

Those involved with examinations will be notified in good time before changes are made to examination procedures or content.

*PO Box 445, Blackburn VIC 3130

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How's DX?

Stephen Pall VK2PS*

As the new year starts moving on, there are already plans for new exciting DX activities to assist DXers achieve their ultimate goal, worked all DXCC countries.

There are some unconfirmed rumours that a major North Korean (P5) activity is being prepared before the end of May. There are also plans to activate Clipperton Island; Scarborough Reef should come to life in May this year, and at the end of next year (1998) Bouvet (3Y5) might be active.

If everything goes according to plan, a number of the most sought-after countries will be at our disposal. To work these rare DX countries we need good propagation and good equipment, besides individual skill and help from "Lady Luck".

In the past four weeks since 10 December, the solar flux number was never below 72, so there is hope in that direction. We should be upgrading our operating skills as far as equipment is concerned, and be knowledgeable about all the technical aspects of our transceivers; the misuse of speech processors, the overdrive of gain-controls and the blunders of using split frequencies are the most common mistakes of some DXers. Open microphones, not zero-beating with the frequency in use, asking questions not directed to anyone about the identity of the DX station, using abbreviated or part callsigns, starting up a conversation when a simple exchange of reports would be sufficient, and not asking permission to use a particular frequency, are the signs of the inexperienced DXer. All of us should be prepared to listen long and hard before we join the long queue of the "hopefuls". Last, but not least, the refurbishment and improvement to antenna systems will create wonders for the average 100 W operator.

Heard Island - VK0IR

As I write these lines on 8 January, the long awaited DXpedition to this remote sub-antarctic island deep in the south of the Indian Ocean, is on its way.

Preliminary information is scratchy, however TOOR was heard and worked from Reunion Island, also TOOR/mm en route to Heard. If everything goes well, they should be active on 12 January or thereabouts.

Here are a few more snippets from the last days of preparation. A new team-member, the 21st, joined the expedition in the middle of December. He is Hans-Rudi Burki HB9BHW, who was introduced by team member Willy HB9AHL. Hans is a keen CW man and his knowledge of some electronics

and that of the new Inmarsat telephone, will be valuable to the team. The two 10 ton containers and the 400 kg of luggage which was sent from Belgium, have safely arrived in good condition. FT5WE confirmed from Crozet that it will be very difficult for the Heard team to operate from that island. Sam FT5WE will board the boat to leave when they pass Crozet. On Reunion the Heard Island crew was staying in bungalows right next to the Ocean. The 21 members of the expedition represent 10 DXCC countries: Spain 1, Switzerland 3, USA 9, Puerto Rico 1, Austria 1, Belgium 2, The Netherlands 1, Russia 1, Australia 1, and Singapore 1.

The DXpedition received official support from the ARRL. The ARRL Colvin Grant Committee has authorised a grant of \$US5000 to the expedition. The Colvin Award is to support amateur radio projects that promote International Goodwill in the field of DX (long distance communication). It is funded by income from W6KG, an endowment established by the late Lloyd Colvin of "Yasme Foundation" fame.

Alan VK4AAR, reading my January notes about Heard Island, reminded me that there were activities from Heard later than 1983. This is quite correct. There were individual activities in 1986 and 1987. However, as far as DXpeditions go, the last ones were in 1983; Frank VK0DA was active for two months during the late 1986 early 1987 (see *Amateur Radio* "How's DX?" August 1995 issue), and Dave VK0HI was also there in December 1987. Incidentally, Alan VK4AAR worked TOOR/mm en-route to Heard Island on CW on 4 January.

Antarctic Stations

The Antarctic "summer season" is now with us. According to a variety of reports the following stations are active:

- * CE9/CE7JOD - Capitan Arturo Prat - Greenwich Island - South Shetland. Heinz is active every day at 0300 on 14240 MHz. QSL to CE7JOD.

- * CE9SAC - Teniente Luis Carvajal - Adelaide Is. Carlos and Abraham active from 0030 to 0500 around 14.277 MHz. QSL to EA8BGY.

- * CE9OH - Bernardo O'Higgins 2300-0300 - 14.192 MHz.

- * 8J1RL - Ongul Island. Active on CW around 14.019 MHz. QSL to JARL Bureau.

- * KC4USB - USN Marie Bird Surface camp - Mary Bird Land, op Steve. QSL to K4MZU.

- * KC4AAA - USN MARS Amundsen Scott - South Pole. QSL to NC6J.

- * KC4/UA3YH - USN MARS Amundsen-Scott, South Pole. Nicolai active. QSL to RW3XA.

- * KC4AAC - USN MARS Palmer Station, Anvers Isl. Operator Greg WB7CHV.

- * KC4AAD - USAP Siple Dome Station (81° 40' S - 149° 00' W). Operators Wendy and Don. This new base has been set up for three years and is about 500 miles from McMurdo station. Houses 20 personnel.

- * KC4AAF - Upstream Charlie Base. Novice operator Sara.

- * LZ0A - St Kliment Ohridski - Livingston Isl, South Shetland Islands. Dany LZ2UW will be returning to the base around the middle of December. QSL to LZ1KDP.

- * LU1ZV - Army Ejercito Esperanza, Palmer Peninsula. At 0100 around 14.240 MHz.

- * CE9/CE8CMI - Patriot Hills Base, Ellsworth Land. Moncho is active every day at 0300 around 14.270 MHz.

- * HF0POL - Henryk Arctowski - King George Isl. Mark SP3GVX will be active on all bands. QSL to SP3FYM.

- * R1ANT Saam Molodetzchnaya - Enderby Land. QSL to UA1MU, Victor Topler, PO Box 38, 192 241 St Petersburg Russia.

- * R1ANZ - Saam Mirny - Guillaume II Coast. QSL to UW1ZC, Valentin Mykitenko, Akademgorodok 2 1, 184340 Loperskaya, Russia.

- * R1ANL - Saam Novolazarevskaya - Princess Astrid Coast.

- * R1ANW - Saam Vostok - Wilkes land. Will be active soon with a novice operator.

- * EM1KA - Akademik Vernadsky Base - Galindez Isl. Roman is very active. QSL to JA2JPA, Takashi Ajiro, 2-14-18 Doubayashi, Shimizu, Shizuoka 424, Japan.

- * VU2AXA - Maitri - Reine Maud Land. QSL to VU2DVC.

- * VU3NHO/P - Maitri - Reine Maud Land.

- * ZS7ANT - Sanae - Princess Martha Coast. QSL to ZS5UD.

- * FT5YP active from Les Petrels CW/SSB.

- * 7S8BBB - Swedish base.

- * OA0MP - Peruvian Antarctic base Machu Picchu on King George Island.

The Final Word on XY0RR

The DXCC Award Committee of the ARRL published the following press release on 2 December 1996. "In 1991, the DXCC Desk accredited the XY0RR operation that the operators claimed had taken place from Myanmar. That accreditation was based on evidence that the operators had made a legal entry into the country, and possessed

operating permission from the Government of Myanmar.

"Recently obtained information has called this evidence into question. An investigation has disclosed no record in Myanmar of the operators having entered the country on the day and at the place shown in the XY0RR documentation. Additional facts have come to light that do not support the claims made in that documentation.

"If the accreditation decision regarding XY0RR were to be made today, the operation would not be accredited based on presently available information. However, technical difficulties prevent removal of DXCC credits for this operation. DXCC participants whose credit for Myanmar is based on a contact with XY0RR are encouraged to make a replacement contact for their own personal satisfaction."

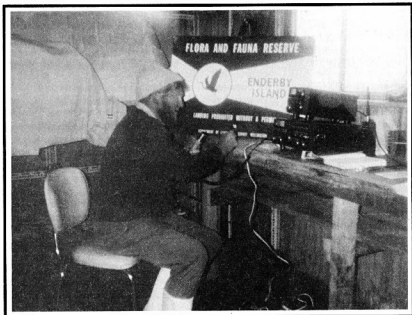
Auckland Islands - ZL9GD

Early last year, Graham ZL4MV made a short visit to the Auckland Island Group. When replying to my QSL card, he not only sent the much valued ZL9 card but also an interesting letter about his experiences on Enderby Island which is part of the Auckland Islands Group. Here are some of the details from his letter: "On 11 February 1996, after an afternoon sailing on Bluff Harbour, I met the owner/skipper of a large ocean going yacht looking for more crew for a voyage down to the sub-antarctic Auckland Islands. Oh boy, here was a chance for a sailing adventure and to get back to the islands and hopefully try to work some DX to make up in some small way for the disappointments following the fiasco of my 1995 trip when the ARRL ruled that my mini-expedition was invalid due to my unintentional breaking of the rules.

"There was no time to advertise my trip as, two days later, I was at sea calling in at Stewart Island to collect our DOC (Department of Conservation) ranger and then we were sailing to ZL9. This time the wind blew continuously from 20-50 knots, so it was great to get into sheltered anchorage. The Auckland islands are at 50° 5' South, 166° 10' East, away to the South of New Zealand, and are lashed by gales for most of the year.

"On the afternoon of the 17th we arrived at Sandy Bay on Enderby Island at the northern end of the islands group. From December until about April each year, the beach and open ground at Sandy Bay are inhabited by hundreds and hundreds of Hooker sea lions that gather to have their pups and to mate again, a very noisy and busy place indeed.

"The Department of Conservation (DOC) has a base camp on Enderby and another



Graham ZL9GD on Enderby Island.

smaller camp site on Adams island, about 30 miles to the South. In the late 1800s cattle, sheep, goats, rabbits and pigs were liberated on the island as a food source for the survivors from the many shipwrecks around these islands, but now all have been culled except a small number of wild pigs.

"The DOC limits the total number of persons allowed to land on the islands to 600 per year and charges \$NZ200 per person for a landing permit. Landing is only allowed on Enderby Island. This may seem severe conditions but they are trying very hard to keep these islands in pristine condition and to keep pollution of any type to an absolute minimum; even the 600 pairs of feet each year has an effect. Most of the people would be from "controlled" tourism and from cruise ships that have visited the island. The day we arrived a Russian cruise ship returning from the Antarctic, the "Ice", called in to take the DOC staff off the island and return them to the New Zealand mainland. Their term of isolation ended for the season.

"With the help of other crew members we ferried my radio equipment, batteries, etc ashore in an inflatable dinghy and landed it through the surf onto the beach and then carried the gear up the hill to a DOC hut where I set it all up, hoisted my inverted Vee antennas and tested the airwaves. My rig was a Kenwood TS180, AT180 tuner and was powered by two car batteries and running about 50 watts. The great thing operating in remote places is the absence of man-made interference and no local QRM.

"On my previous trip I made good use of net controllers and I most sincerely thank all those hams that made themselves available to control nets. This greatly speeds up the number of contacts one can handle in an hour or so. I worked on 20 and 40 metres SSB only. I began calling CQ at 0515 UTC and worked on until the early hours of the morning until my batteries went flat. During the evening I stopped for the occasional break and enjoyed a coffee from the thermos flask.

"Late in the evening I had a most unwelcome visitor in the form of a large female Hooker sea lion. The door of the hut was open and in she came. Lucky for me there was a broom in the hut so I managed to chase her out again with much barking and snarling from the sea lion. I love sea lions, but at a distance.

"Once the batteries were nearing the end, I called the yacht on the handheld and the skipper headed in to take me off the island. I decided it was too risky to try and take the gear off in the dark so I left it all in the hut and, with torch in hand, began to make my way down to the beach to be picked up, only to find sea lions everywhere; so I returned to the hut for the "trusty" broom. I made my way back down to the beach and, with the odd good swing of the broom, I managed to keep a fairly clear path. Leaving the gear until daylight was a good decision, as I got wet to the waist line getting into the dinghy and the sea temperature was at 4° C. Brrrrr..."

Graham was only six days on Enderby island. He operated only three nights from three different sites and managed to work

over 800 DX stations. Being a crew member of the 20 m ketch-rigged yacht "Quintessa", his times and hours of activity were very much limited by the movements of the boat.

His 1995 January/February activity was not allowed by the ARRL because, not knowing the DXCC rules, he operated actually from a boat at anchor at various bays on the island. This time he made sure that his activity was in accordance with the rules by operating with the assistance of two heavy duty batteries on solid ground.

Yemen - 70

"Zorro" JH1AJT and Franz DJ9ZB were active from Yemen as 701A from 15 to 23 December. It was a demonstration of amateur radio to the Ministry of Communication officials, on SSB only, on a variety of amateur bands. This was the third successful activity from this rare DXCC country. The first one was by 9K2 operators as 701AA, and the second in 1990 by F2VX and F6EXV as 708AA. This latest activity was a success in many ways. It was reported that "Zorro" JH1AJT received an invitation from the Yemen authorities to return at the end of April this year for another operation, possibly including CW and RTTY. The two DXers made a total of 13,140 contacts on the 3.5, 7, 14, 18, 21, 24 and 28 MHz bands. They worked 105+ countries. The equipment used was a TS-50 to an R-5 and dipole antennas. QSL via JH1AJT, Yasuo "Zorro" Miyazawa, PO Box 8, Asahi-Ku, Yokohama, Japan 241.

Future DX Activity

* Charles S92SS is back in Sao Tome after a short holiday in the USA. He prefers 17 m CW, and his wife S92YL prefers 20 m SSB DX nets. Both will return to the USA in June 1997. When QSLing, make sure you put "Via Portugal" on the envelope.

* Gary WA1JBB (ex-C53HG) will be staying in Namibia for the next four years. He is waiting on a V51 call sign.

* Marcia, XYL of 9G1BJ, will be active for the next two years as 9G1TM, SSB only, mostly on 20-10 metres including WARC bands. QSL via G4XTA.

* Mark ON4WW is active from Kigali, Rwanda as 9X4WW on 14118 kHz and 1827.5 kHz.

* Jim KH2D will be active on 160 m for the next few months from 0800 and 1500 UTC on 1828 kHz. QSL via K8NA.

* Ralf DL2FDK will be active from Thailand as H50/DL2FDK from 17 January to 17 February on SSB and Pactor, 40 to 10 metres.

* St Helena ZD7 can be heard on 7003 kHz on CW around 2200 UTC. Operator is Gilbert ZD7BG. QSL direct to Box 157, Island of St Helena.

* Henry XQ0YQA, on Easter Island, is active on 21 MHz CW at 2100 UTC. QSL direct to Box 4, Easter Island.

* SurJT1BH is working CW on 10, 15, 20, 40 and 80 metres. QSL to Box 125, Ulan Bator 13, Mongolia.

* Charles TL8CK is active on 14165 kHz at 2000 UTC. His English is limited. A little knowledge of French will assist towards a successful contact. QSL via F6EWM.

* Mike VE9AA is organising a DXpedition to St Paul Island, CY9. The date is around the middle of June this year.

* Joe VE3BW intends to be active from St Kitts as V47CA from 3 to 17 February.

* Expect some special contacts during February from Namibia. Charlie KY0A (V5ZS6YG) is organising some activity with W8UVZ. They intend to participate in the ARRL CW contest on 15-16 February.

* Watch out for the Scarborough Reef expedition early in May. Martii OH2BH is leading a number of operators to that reef.

* Karl PS7KM and Tino PT7AA will be active from St Peter and St Paul Rock as ZY0SK and ZY0SG for two to three weeks starting around 25 January. Some reports suggest that the prefix will be ZV0. QSL via PT7AA for CW, and to PS7KM for SSB QSOs.

Interesting QSOs and QSL Information

* H44TQO - Gunnar - 14165 - SSB - 0931 - Nov (E). QSL via SM4NLL, Hans Ostervall, Hyttingsv 31, S-78134 Borlänge, Sweden.

* J68ER - Bob - 14222 - SSB - 0544 - Nov (E). QSL via W9UI, Robert W Esquire, 8334 Pleasant Plain Road, Brookville, OH 45309, USA.

* 9M8FC - Chang - 14038 - CW - 1000 - Dec (E). QSL to Joseph Chang, PO Box 2127, 93742 Kuching, Sarawak, East Malaysia.

* Z32XA - Ozren - 14020 - CW - 0629 - Dec (E). QSL via KM60N Mike T Jakiela, POB 286, Poway, CA 92074, USA.

* FK5M - Eric - 14260 - SSB - 0436 - Dec (E). QSL via F6AJA Jean Michel Duthilleul, 515 Rue de Petit Hem, Bouvignes, F-59870, Marchiennes, France.

* 5X4F - Paul - 14164 - SSB - 0650 - Dec (E). QSL via K3SW James Di Kulp, Signal Hill Farm, 88 Signal Hill Lane, Middletown, VA 22645, USA.

* 5H3HM - Yuki - 7080 - SSB - 1855 - Dec (M). QSL via JP1FJE via QSL Bureau.

* 3B8/F5PYJ Claude Leclerc, 169 Rue Du Mal Leclerc, F-79000, Niort, France.

* XT2DP - Dan - 7082 - SSB - 1935 - Dec (M). QSL via WB2YQH Robert E Nadolny, PO Box 73, Springbrook, NY 14140 USA.

* 5Z1PL - Peter - 7078 - SSB - 1735 - Dec (M). QSL via Peter Lutz, PO Box 1095, Limuru, Kenya, Africa.

* V63CT - Lee - 14196 - SSB - 0832 - Dec (E). QSL via HL1IWD, via QSL Bureau.

* A61AN - Naser - 14220 - SSB - 1206 - Dec (E). QSL to Naser Fekri, PO Box 53656, Dubai.

From Here and There and Everywhere

* It is with great sadness I report that "Bing" VK2BCH is now a Silent Key. Bing was a well known DXer in the 1980s. He was one of the early DXers who visited Rotuma Island and operated as 3D2XV. He was also active under the call signs of VK9LB, ZK1XV, 5W1GY, ZK3RVC, A35XV, T20XV and YJ0AXV.

* The Southern Cross DX Net is operating again at 1100 UTC each day on 14255 kHz. Net controller is Alan VK4AAR.

* Antoine 3D2AG was on Rotuma for one month preparing for the last year of his university studies. He said that he intends to be more active in the future.

* Matthew Island, a possible new IOTA Island, was activated by Eric FK8CR and FK8GM for 24 hours on 3 and 4 December under the call sign FK5M. Matthew Island is situated a little south of 22° South Latitude and a little west of 172° East Longitude and is claimed by both France and Vanuatu. There has been a couple of "Flag" raising incidents so far and, at times, different ships have been dispatched from either side to "claim" it. It is an uninhabitable island and is of little use to either country except for the economic zone surrounding it. The French Navy maintains a small amount of provisions there for any shipwrecked person. This was the total activity on this island until 3 December at 2000 UTC when a French DXpedition opened up another page in its history. The trip to the island was by boat and helicopter. The DXpeditioners left the island at 2000 UTC on 4 December. QSL via F6AJA.

* How to celebrate a birthday? Austin VK5WO made sure it was a special celebration. On that day he was on a 12 hour return flight over Antarctica on a Boeing 747. It was a great experience, one that Austin will remember for a long time.

* Kerguelen and Crozet islands were very active during 1996, but things have changed. FT5WE, FT5WF and FT5XL all went home at the end of the year, and they will not be replaced with personnel with amateur licences.

* The Society of New Foundland Radio Amateurs will operate VO500JC special event station during all of 1997 to commemorate the 500th anniversary of John

Cabot's voyage to the new world. The activity will take place from the VO1AA club station. QSL via VO1AA.

* Competition is the "in" word these days. Old ventures disappear or merge, new ventures become alive. *The DX Bulletin*, for many years edited and published by Chod Harris VP2ML, was taken over by Paul AE4AP and Nancy KB4RGW in August 1996, together with *The DX Reporter* and the *DX Magazine*. In late November 1996, *The DX Bulletin* and *The DX Reporter* merged with a relatively new publication, *The 59(9) DX Report*. Bob WB2YQH will continue to edit and publish *The 59(9)DX Report* from New York State. The *GOLIST*, a well known QSL Managers' list, first changed hands in July 1995 from Jay and Jan O'Brien, W6GO and K6HHD, to Paul and Nancy Smith, AE4AP and KB4RGW. Due to a reorganisation, the new publisher of the *GOLIST* is now John Shelton WB4RRK as from December 1996. It appears that Paul and Nancy will concentrate on producing only the *DX Magazine* in the future. *QRZ DX*, which is one of the oldest of the DX bulletins, is in its 19th year of publication. It has been edited and published by Carl Smith N4AA since April 1995.

* Jin JF1IST was active for one week last December from Eritrea as E31FAO. QSL via JH1AJT.

* According to the Japanese *Five Nine DX Magazine*, Yasu JH1AJT and Jun JH4RHF visited Pyongyang, the capital of the Democratic People's Republic of Korea, from 22 to 26 October. During their visit they met a senior North Korean commissioner, Mr Park Kwang, of the Amateur Radio Association which operates under the umbrella of the National Athletic Committee. There was also some demonstration of modern amateur equipment to the officials. Another rumour, originating from a Spanish source, says that Martii Laine OH2BH, who was attending the Spanish Amateur Society's annual general meeting, was overheard announcing that P5 would be activated before May this year in a "big" operation.

* Mani VU2JPS has finally received the radio equipment donated by H1DXA. In a fax to Jim VK9NS, dated 26 December 1996, Mani expressed his thanks and gratitude to the members of H1DXA for the donation of a Kenwood TS680S, a Kenpro KR400 antenna rotator for a Cushcraft A43 antenna and a variety of cabling which he received in good condition. It is now up to Mani how often he appears on the bands. The situation with an Andaman prefix of VU4 is still unclear and, of course, the DXCC still has to decide whether they will accept the activity as valid

for the DXCC award. According to Jim, the whole exercise grew to be a very costly project with freight, customs duty, handling, fax and telephone costs, not to mention the value of the equipment itself.

* Y1IRS was heard on 20 m CW. Operator was Amir, PO Box 55072, Baghdad, Iraq.

QSLs Received

9M8FC (2 w op), 9I2CE (4 w - IN3VZE), C56DX (7 w DL7DF), TT8SP (6 m - N8TV), 3C5Z (1 m - N6ZZ), 5R8F (2 m op).

Thank You

Many thanks to my fellow amateurs, whose assistance is always very much appreciated. Special thanks to: VK1ZL, VK2XH, VK2YX, VK2JDM, VK2KFU, VK2TJF, VK4AAR, VK5QW, VK5WO, VK8DK, VK9NS, YJ8AA, ZL4MV, ARRL DX Desk, *QRZ DX*, *The 59(9) DX Report*, *The DX News Sheet*, *The 425 DX News* and the *GOLIST* QSL Managers List.

* PO Box 93, Dural NSW 2158

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Novice Notes

Peter Parker VK1PK*

Operating Portable

Introduction

One of the most enjoyable facets of amateur radio is operating portable. You may live in an area plagued with electrical interference, antenna space restrictions or dwell in an "RF hole". In such cases, portable operation allows you to obtain contacts not possible from home.

Or you may be planning a holiday or excursion. While not a substitute for proper RFDS or Marine equipment, amateur radio can add to the enjoyment of the trip, whether you take a VHF hand-held, homebrew QRP rig or full HF station.

Those involved in amateur radio publicity, WICEN, or community service activities will find a properly functioning portable amateur station an asset. Having such a capability also allows you to respond quickly in emergencies.

So there are many reasons to go portable. With the warmer weather upon us, now is a good time to make your amateur station ready for portable operation. An additional incentive is next month's John Moyle Field Day Contest, an event which specifically encourages portable operation.

This article deals with both VHF/UHF and HF portable operation. It also gives a few tips on equipment, power supplies, antennas and operating sites.

Equipment

With today's compact transistorised transceivers, almost any hand-held, mobile or home station transceiver can be used portable.

Many operate portable with hand-held VHF or UHF transceivers. While these are fine for limited local operation, one soon finds that short battery life and poor antenna efficiency place a limit on what can be achieved. In addition, many hand-held two metre transceivers have poor receive front-

ends, which make them susceptible to overload from pager transmitters in some areas. Fortunately, as you will read later, many of these disadvantages can be overcome.

Mobile VHF or UHF transceivers are also suitable for portable use, particularly where they have several output power settings to conserve power. Another benefit is that their immunity to pager interference is often superior to that of hand-held equipment. While many older ex-commercial crystal-controlled mobile transceivers exhibit even better immunity, having just a few frequencies available is a severe limitation for hilltop operation. The author has found the 2.5 watt Yaesu FT290R a good performer for portable operation. This particular transceiver also features SSB/CW facilities, permitting extended-range terrestrial and satellite contacts to be had as well as the possibility of later adding a transverter for the HF bands.

There is not a lot of difference between most modern HF rigs for portable operation. However, the standard 100 watt power output is likely to limit transmitting to short periods with anything less than a generator or substantial battery. An alternative is to modify these rigs to low power (QRP) operation. Such modifications are not hard - often you do not even need to remove the lid (Reference 1 is an example).

Another possibility is to purchase the older, lower power, solid state HF transceivers designed specifically for Novice licensees. Examples of such transceivers include the Yaesu FT7 or Kenwood TS-120V. An advertised price of \$300 to \$400 is typical for these sets.

If your scale of operation is such that a full HF station is not warranted, operation on one or two bands can be contemplated. Eighty and forty metres are a good combination for South-Eastern Australia, allowing contacts at

most times. Home construction of suitable equipment is quite feasible for those with previous practical experience.

At this time of the year ten metres comes into its own, with many quality, interstate sporadic-E contacts able to be had. A converted CB will yield good results during such times. However, at this phase of the sunspot cycle, 28 MHz is unpredictable, and one can go for days or weeks without hearing anything. For this reason, portable operators should consider taking equipment for other bands until conditions improve.

Power

The power source for a portable station can range from a nicad battery pack on a hand-held transceiver to a generator capable of running a full-power HF station. Others use car batteries, sealed lead acid batteries and/or solar panels to power their station.

The power source eventually adopted depends on:-

- * the period of portable operation;
- * transceiver current drain; and
- * size/weight considerations.

Portable operators find that there is a trade-off made between operating period/transmit power output on the one hand, and battery capacity/size/weight on the other.

Your need for transmit power depends on the results desired. In a comparatively

densely populated area, a power output of five watts from a good site should yield results on VHF/UHF, and allow several hours of operation from a relatively compact battery. On 80 metres, a power output of between two and 20 watts on SSB should suffice for most short and medium distance work. Such powers are also practical on 28 MHz when the band opens.

The author considers that the rechargeable, sealed lead-acid battery (or "gel cell") is the most reliable and cost-effective power source for several hours of operation with low to medium transmit powers. As remarked earlier, small nicad battery packs give only a short "talk time". As well, they seem to run out at the most inopportune moment. Much more use from a hand-held transceiver can be obtained by running it from a 12 volt sealed lead acid battery. However, caution should be exercised here. Apart from checking the polarity of connections, one should verify that the hand-held is able to take the full voltage put out by a well-charged battery. If not, a voltage regulator should be constructed to bring the voltage down to that required. Alternatively, batteries complete with in-built regulators are commercially available (Figure 1).

When using larger pieces of equipment, it makes sense to draw up a power budget so

that you know approximately how long your battery will last. Transmitting demands more from the battery than does receiving, with the difference increasing with transmit power. Different activities have differing transmit/receive time ratios. For instance, one-to-one operating is more power intensive than a large net with many on frequency.

To draw up a power budget, you need to know the following:

- * transmit current consumption;
- * receive current consumption;
- * transmit/receive ratio; and
- * battery capacity (in amp hours).

The first two can be obtained from your transceiver's instruction manual. The battery's capacity should be printed on the battery itself, while you can take a guess for the transmit/receive ratio.

We will use an example here of a Kenwood TS-120V, a popular transceiver for HF portable operation. Its transmit power consumption is 4 amps, while on receive it draws 0.7 A (at 13.8 volts). We assume that we will be listening twice as long as we're transmitting (ie transmit/receive ratio of 1:2). Thus, in an hour one would be transmitting for 20 minutes (0.33 hr) and receiving for 40 minutes (0.67 hr). The object of this exercise is to find the mean power consumption of the station in a given hour of activity. Armed with this information, one could then determine how long a particular battery is likely to last or, conversely, how long one can operate with a battery of a given capacity.

A calculation for the TS-120V would be as follows:

Receive contribution: $0.7 \text{ A} \times 0.67 \text{ hr} = 0.47 \text{ Ah}$
 Transmit contribution: $4.0 \text{ A} \times 0.33 \text{ hr} = 1.32 \text{ Ah}$
 Total (for 1 hour) = 1.79 Ah.

Thus, if we were to operate in this manner for one hour, we would need a total battery capacity of around 2 Ah. With a 6 Ah battery, it should be possible to operate for at least three hours. Empirical tests with a TS-120V and a 6.5 Ah battery showed that ample capacity was available for this period of operating.

The figures above are conservative. This is because the transmit/receive ratio assumed is more typical of active contesting than casual operating, which tends to involve more listening. As well, the SSB and CW modes have lower duty cycles than FM or digital modes, where the transmitter is radiating full power (and thus drawing maximum current) during the entire time the operator is transmitting.

Performing a few calculations like this will reveal why much portable operation takes place with lower transmit powers than is usual from home. Doubling output power will not necessarily improve the quality of

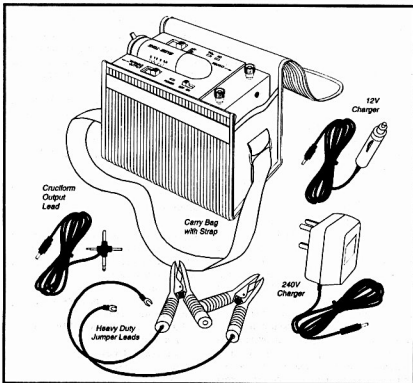


Figure 1 - A commercially-available rechargeable battery pack and regulator (courtesy Daycom Communications Pty Ltd).

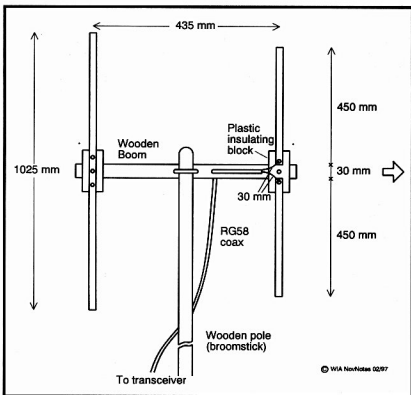


Figure 2 – A simple two element Yagi for two metre portable use.

contacts achieved, but will have a large effect on power requirements and/or the operating time permitted per battery charge.

Choosing a Site

On not every occasion can one choose the operating site. However, when a choice is possible it should be made with the following factors in mind:

- * general site amenity (access, shade, freedom from high winds, etc);
- * distance from power lines (for both safety and interference reasons);
- * distance from other man-made interference sources;
- * availability of trees (for supporting HF wire antennas);
- * altitude (particularly for VHF/UHF operating);
- * clear paths in desired directions (particularly for VHF/UHF operating); and
- * distance from pager transmitters (especially for two metre activity).

The relative importance of each of these factors will vary according to the bands used, and the type and distance of contacts desired. Depending on equipment quality, some sites will be unusable for two metre operation because of strong signals from pagers and other transmitters. However, with better equipment, a cavity filter or even horizontal antenna polarisation, the site could prove

useable. As well, other factors can come into play. For instance, if one were experimenting with vertical antennas which rely on a good ground system, an area surrounded by salt water or wetlands might be a good choice.

Portable Antennas

Like the operating site, the antenna chosen depends on the contacts desired and the type of activity.

Again, the popular VHF and/or UHF hand-held transceivers with their short helical antennas are not ideal. Fortunately, better antennas can be made at home. Perhaps the next step above the standard antenna is a quarter wave whip plugged directly into the rig's antenna socket. Or, a 1/4 or 5/8 wave ground plane can be fabricated from easily available materials – designs frequently appear in the popular amateur handbooks. Still others use J-pole antennas, made either from metal tubing or a length of 300 ohm feedline small enough to be rolled up and carried in a pocket.

Transmit and receive coverage can be further enhanced through the use of a small beam antenna. Gains of 8-10 dB over a dipole are possible with portable Yagi or quad antennas. However, above this level the antenna's boom needs to be lengthened considerably to achieve even a small amount of additional gain. Figure 2 shows a two

element Yagi suitable for two metre portable use. Built on a wooden boom, it makes use of elements from a discarded television antenna. No balun or special matching section is required if the antenna is fed directly with 50 ohm coaxial cable (RG58 suggested for short runs). A wooden mast or tripod can be used to mount the beam. The gain of this antenna would be approximately 4-5 dB above a dipole. Empirical tests have confirmed the Yagi's gain.

Amateur transmitting from good sites in densely populated areas may find that two or more repeaters are accessible on the one frequency. By concentrating the transmitted signal in one direction, a Yagi or quad allows operation through one repeater without disturbing those listening on other repeaters who would otherwise be hearing one side of the conversation taking place. In such cases, a beam is desirable, not so much because of its gain, but its directivity.

Note that on VHF/UHF, vertical antenna polarisation is favoured for FM and packet radio operation, while horizontal is used by SSB operators. Failure to observe this convention will result in many lost contacts; cross-polarisation losses can be very high. On HF antenna polarisation is much less significant.

On the lower HF bands, most portable operators use simple dipole or inverted-vee antennas. The latter are particularly convenient, as only one central high support is required; the ends can be tied off at only a metre or two above ground. Those using several bands have the choice of multiple dipoles, trapped dipoles, or tuned feeder antennas.

Generally, the antenna should be mounted as high as possible. In most areas it should be possible to find a suitable tree to support an antenna, though there are cases when it would be wise to bring a collapsible mast. Further details on antennas and their construction can be found in the standard handbooks or back issues of *Amateur Radio*.

Accessories

We have looked at equipment, power supplies and antennas required for portable operation. However, there are a number of other accessories that help make portable operating more enjoyable.

These include:

- * external speaker-microphone (if using a hand-held transceiver);
- * RF field strength meter/SWR bridge;
- * multimeter;
- * back-up batteries;
- * logbook/pens;
- * clock/watch;
- * VK Callbook (particularly for lists of repeaters, bandplans, addresses); and

* Personal needs (food, water, insect repellent, shelter, etc).

It may be a good idea to make a checklist of the above items so that none are left behind, particularly if operating some distance from home. Some go further and mount their equipment in cases large enough to carry accessories as well as the transceiver itself. Such an arrangement makes it easy to go portable at short notice.

Conclusion

This article has provided some pointers on amateur portable operation on the HF/VHF/UHF bands. A good thing about it is that you will probably have most of the

equipment required. As well, a portable station can start off very simple and be gradually added to as time and inclination allows. Don't forget the John Moyle Field Day a little over a month away on March 15/16; the rules are in the *Contests* column in this issue of *Amateur Radio*.

Reference

1. Buxton, S - Use of IC735 HF Transceiver for QRP Operation - *Amateur Radio*, August 1996, page 24.

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Over to You - Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Lazarus Revisited

I must exclaim that "reports of my death are highly exaggerated!". Your reporting of me as a "silent key" in January *Amateur Radio* has caused me much consternation and exacerbated my ongoing problems with haemorrhoids and flatulence which, in turn, has put me into deeper domestic conflict with the war office (XYL).

I did but compose a small tribute to our late and highly esteemed OldTimer "Trig" Trigwell, which was sent to you by Clem VK6CW. Somehow, you managed to dispatch me to those realms where communication is no longer possible using electromagnetic waves but must be carried out by ectoplasm visitations, the use of a ouija board or a Medium.

For years I have suffered the ignominy of having my name firstly used by some singer back in the "sixties" and more recently by Tom Hanks, perhaps in an Oscar award-winning performance in "The Burbs". Now the final and cruellest cut of all - being named a "Silent Key"!

I ask, sir, your DEMAND a full retraction of this vile mischief; in pain of non-compliance may an exceedingly high VSWR be visited upon your antenna feeder!

Yours healthily (at the time of writing),

Ray Peterson VK6PW

11 Clive Street

Bicton WA 6157

[We must most abjectly apologise, Ray. The confusion came about as you have indicated, your callsign being attributed to Trig. We are glad you can see the humour in our inexcusable error. Ed]

CW Contacts

May I pass some comments on CW ("to be or not to be"), and my experience to date.

Reaching the age of 72 years, I decided somewhat belatedly to try to join the ranks of amateur radio operators. Being successful in attaining Novice status in April 1996, I decided to try for a full call in late December.

Although able to send and receive at 12 wpm, I find it very hard to achieve a contact on CW (80 metres), although I have no problems with voice.

As Professor Julius Sumner Miller would say, "why is this so"? Is it that the "old hands" do not want new chums to dabble in THEIR mode? If so, CW is destined for a quick and hopefully a painless death.

Bernie Dawson VK2MPN

1 Gobondery Street

Trundle NSW 2875

Lost Yachts

World Race Yachts in the News. We have the press and TV media saying they are in trouble in latitudes far beyond radio communication. What absolute rubbish. If by chance they have no HF radio on board, then they should have been prevented from starting in the race.

Years ago in a similar race I, and other amateurs, worked the yachts approaching Perth and then into Sydney. Likewise, I have kept watch on aeronautical mobile people coming from the USA into Australia, all on a dipole and Kenwood TS-520. No big deal, but they did have positive communication and position reports.

Did anybody work these yachts at all, or did people press buttons which did not work?

For a long time now the so called 11 year cycle and solar flux and other fancy names have been a cop-out for bad communications. Pressing buttons and putting in various filters will not get you a QSO. Leave the filters out,

spin that dial and you will get plenty of contacts.

If possible, upgrade to CW and you will NEVER be without a contact. If you press that key, or use phone on the correct frequency, and use GMT for time, then you will be able to stop using QSB, QRM, and QRN, etc as an excuse.

Expensive transceivers and keyboards and screens to copy CW are not the answer to amateur radio activities. All too often one hears a contact broken off because of the well used "QSB". What the blazes do they expect? Try working in the tropics or at sea or in the air, and you will see you never had it so good from your comfortable room. If you have one of these new transceivers that make tea and talk to you, learn to use it correctly and don't waste your money.

I hope the yachtsmen are found OK.

G W Lanyon VK2AGL

16 Hilton Avenue

Roselands NSW 2196

[It would seem that communications was not the problem. Unstable boats and vicious weather were! The fact that three were successfully rescued shows that the safety systems did work. Ed]

More CW Information

The letter from Steve Ireland about CW is wrong on several counts.

1. Most ships do not use CW. The few that do will phase it out by year 2000 when the GMDSS becomes mandatory [Global Maritime Distress and Safety System. Ed]. In Australia on 30/6/93 there were 66,290 marine station licences, none of which used CW to communicate. Less than 197 of them would even have had a transmitter capable of CW mode and those ships do not carry a radio Morse key.

2. Regulations aside, no professional seafarer would put to sea with only amateur radio to cover emergency communications.

3. It is irrelevant to amateurs if ships use CW or not, as there is no common frequency to communicate on legally. It is not that long ago that general coverage receivers became common; prior to that amateur gear would not even hear ships.

Is your best reason for CW really to decode a beacon?

Instead of assigning mythical and magical qualities to CW, Mr Ireland should enjoy his bit of the hobby and be happy the rest of us enjoy our bit.

Steve Truscott VK2SPT

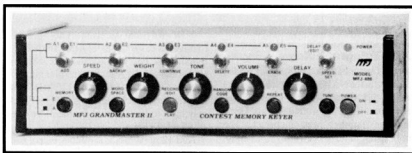
158 Regal Way

Valentine NSW 2280

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Pounding Brass

Stephen P Smith VK2SPS*



The MFJ-486 Grandmaster Contest Memory Keyer

Grandmaster Keyer

The number of electronic telegraph aids for operators currently on the market today is quite astounding. Whether it's to assist the operator learn Morse, or to help in his sending ability, or a combination of both, today's operators certainly have the advantage over the operators of yesteryear.

This is particularly true in contest situations where, with the press of a button, the operator can send a pre-programmed message prepared before the event. This relieves the operator of some pressure, especially if he/she is using a pump key or iambic paddle where sending mistakes do crop up after many hours of contesting.

Some operators are quite content to send without the use of electronic telegraph aids, yet others swear by them. I believe the choice is up to the individual. However, sometime during your operating career, you will come across them. So, why not give them a go? You may even like them!

One unit I believe is worth a mention is the MFJ-486 Grandmaster Keyer which is a microprocessor controlled iambic memory keyer. This state of the art unit is not cheap, costing \$409 from Daycom Communications Pty Ltd, but what it offers the operator is truly amazing.

The unit comes with a well written manual with 11 of the pages being approximately A4 size. I would recommend you read the manual several times as it is very easy to miss a particular sequence, especially in the programming steps.

Rear Panel

The MFJ-486 power requirement for correct operation is a voltage between 12-15 VDC; anything more will damage the unit. A 2.5 mm male plug is required for power input.

A standard 1/4" stereophonic plug, which

plugs into the rear of the unit, is required to use a standard paddle. The unit is also equipped with a headphone jack if private listening is required (a 3.5 mm mono plug). The internal speaker is quieted when the headphones are in operation.

The unit is equipped for grid block and cathode keying. For cathode keyed and solid state transmitters, use the direct keying output. If in doubt try both outputs.

Front Panel

There are five large black rotary knobs located on the front panel and are for adjustment of speed, weight, tone, volume and delay.

Speed

This control, in conjunction with the speed set switch, is used to adjust keying speed. There are three settings, depending upon the position of the speed control knob. If the knob is set fully clockwise, and the speed set switch is depressed, the keyer speed is set to 20 wpm (this can be adjusted from four wpm fully anti-clockwise to 20 wpm fully clockwise). If the knob is fully anti-clockwise and the speed set switch is depressed, the keyer speed will be set from 20 wpm to 100 wpm fully clockwise. The third setting is a compromise between the above two settings.

Weight

This adjustment sets the Dot/Dash ratio from 1.3:1 to 5:1.

Tone and Volume

The tone knob adjusts the pitch of the CW note. The volume control adjusts the loudness which should be set to a level for easy listening.

Delay

This control sets the delay time before a message, which is programmed in memory, is repeated; or, in random code, sets the spacing between characters and words.

Underneath the above controls there are six push button controls which, depending on their positions, can have double functions.

Memory Button

This switch controls which memory bank is used. There are two memory banks with five addresses on each bank. The banks are A and E. The memory locations are numbered from 1 to 5 (more on this later).

Word Space

This control has two functions. In random code it selects either fixed or random group of characters, and in Record/Edit mode it selects manual or automatic word spacing.

Power On Off

Turns unit on and off (red button).

Recording/Edit

This red button provides five settings:

1. A1/E1 Switch – manually adds word spaces in the manual word space mode;
2. A2/E2 Switch – backup one word from the current point;
3. A3/E3 Switch – continue to play the message from the current point;
4. A4/E4 Switch – delete the last word played; and
5. A5/E5 Switch – erase the entire message address from memory.

The A bank is denoted by a red LED on the panel and the E bank by a green LED.

Recording Messages

To record a message the above buttons are set in a particular order as per instruction manual. When keying in a message, and you hear a long low tone of about two seconds duration, the MFJ-486 doesn't recognise the character being keyed. You may immediately retry the character and the keyer automatically deletes the invalid character.

Once a message has been recorded into memory you can check your message for any errors by hitting the continue button and the message will be played back. When the message reaches the end there will be a delay as set by the delay control before the message repeats itself. After confirming the message is correct, press the dot paddle at the end of the message before it repeats itself. If you make a mistake with the message you can correct the mistake by depressing the backup button.

The backup function will make the editor move backwards one word. You can re-enter the incorrect word and continue with the rest of the message. At any time while the message is playing you may interrupt the message by sending from the key paddles. The message will automatically pause. When the address switch is again pressed the message will finish playing from the point it was paused.

Random Code Generator

This function has two modes of operation

character sets and messages based on live QSOs, similar to the British RAE examinations. If Morse characters, including punctuation, are to be received, the record/edit button remains out; with the automatic word space button in, groups of five characters are sent; with the button out you receive random group lengths from 1-8 characters. Depending on which mode you are in, you can stop the random code by hitting the dot paddle and restart it by pressing the dash paddle.

The delay knob, as mentioned earlier, can be used to increase the spacing between characters. Messages E1 to E5 remain the same, while messages A1 to A5 will repeat until power is turned off; when turned on again, messages A1 to A5 will have changed.

This has been only a basic outline of the features offered by the MFJ-486 microprocessor memory keyer. Some

difficulties were encountered, especially loading the unit with messages and learning the required sequence of button and knob setting. These problems were overcome by further reading of the manual and with practice.

The MFJ-486 is a top class performer and one that any operator would be proud to own.

NATO Telegraph Key

In the December Issue of *Amateur Radio*, we looked at the NATO Telegraph Key model 5805-99-591, of which Brian VK2GCE had a few for offer. Unfortunately, his home telephone number was incorrect. The number should have been (02) 9545 2650. Sorry, Brian, for any inconvenience.

Next month, computer programs; can they really help a beginner?

**PO Box 361, Mona Vale NSW 2103*

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Repeater Link

Will McGhie VK6UU*

Fees

Interesting developments in the increase in repeater licence fees, but I have been asked not to comment at this time. By the time you read this it may be general knowledge. It is difficult writing about this situation due to the delay of about six weeks from when the article is written, until it appears in print. Suffice to say the changes to the cost of licensing repeaters and beacons, if not changed, will see many repeaters and beacons closing down. This has already started to happen in VK6.

More on E Band to 6 m

I received this description on modifications to the FM828 E band radio to 6 metres from Peter VK2XZP. I have presented modification ideas in the past, and Peter's notes make for an interesting addition, particularly the changes to the varicap diodes. The following is from Peter VK2XZP:

FM828 E Band Modifications to 6 m

Following a recent exercise converting an FM828 E band remote radio for use on 53.0 MHz packet, I have developed a set of modifications that appear to work. These modifications have only been implemented on one radio at the present time, and have not been fully optimised for the best performance. They are a good starting point, but may require some minor adjustment to get the best results.

I will firstly deal with the exciter. This part proved to be by far the hardest to get going. I have retained the same crystal calculations, as per the service manual: $T_x X_{tal} = f(\text{carrier})/8$.

The modifications are: change C2 to 270 pF, change C3 to 120 pF, and add 27 or 39 pF across the crystal (under the PCB).

These steps would have to be repeated for any other channels implemented: add 12 pF across L4 (under PCB), add 12 pF across L5 (under PCB), add two turns to L6, and add two turns to L8.

Remove both D2 and D4 (varicaps) and substitute a single dual varicap, a BB212, in their place. Add 27 pF from the hot side of L8 to ground (under PCB).

You will note that I have changed the

varicaps to a different type that give the VCO a greater frequency swing, and thus a better chance of locking up reliably. I found that, with the original varicaps, the PLL would lock but the adjustment of L8 was very critical. In this state it would fall out of lock every so often.

Now for the receiver. This proved relatively easy. The crystal frequency remains as per the manual. $R_x X_{tal} = (f(\text{carrier}) + 10.7)/2$. If you are planning to operate around 53.5 MHz \pm 100 kHz, you may run into trouble with a 10.7 MHz IF and may have to look around for the more rare 10.8 MHz IF units.

Add 12 pF across C75 (under PCB), add 12 pF across C76 (under PCB), add 5.6 pF across C71, C72, C73 and C74 (all within the screened enclosures), and add two turns to each crystal netting coil used ie L7, L8, etc.

Whilst discussing the receiver, during the alignment ensure that C75 and C76 are peaked as per the manual by monitoring TP1. I tried this after reading Will VK6UU's recent *Repeater Link* article in *Amateur Radio*, and found better sensitivity than could be achieved by ear!

The PA amplifier: change C26 to 82 pF, add 47 pF across C20 (under PCB), add 47 pF across C22 (under PCB), add 47 pF across C23 (under PCB), add 47 pF across C25 (under PCB), and add 27 pF across C24 (under PCB).

The harmonic filter. At this stage I remembered reading another of Will's *Repeater Link* columns. In the February 1994 issue of *Amateur Radio*, he suggested: add two turns to L1, add one turn to L2, and add two turns to L3.

I applied this to my unit and, not having a proper spectrum analyser in the shack, checked it on the poor man's spectrum analyser and an FM broadcast receiver, along with a calibrated signal generator. I concluded that the second harmonic content was well down. At some stage when I get a

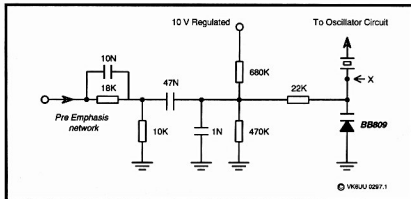


Figure 1 - True FM for the FM828.

chance, I will set the unit up on a proper spectrum analyser at work to view the performance of the harmonic filter and PA.

I hope these notes are of help to you. I must stress that these modifications are not the optimum. I will be interested in hearing from others who have done the same as myself, or have tried my suggestions, and welcome any changes or improvements to my suggestions.

I can be contacted by packet at vk2zrp@vk2zbrnsw.ans.au and by e-mail at pmudie@keycorp.com.au

True FM of FM828

I have mentioned using direct FM of repeater transmitters for better quality audio, but I had forgotten to reproduce the circuit in *Amateur Radio*. Here it is.

The transmitter reference crystal in the FM828 has to have one side of the crystal isolated from AC ground. At this point (shown as point "X" on the circuit) a varicap is placed between the crystal and ground. Audio is applied through the 22 k isolation resistor, along with about four volts bias. The BB809 was chosen as it has a high capacitance change with respect to voltage change, and I found the diode cheap and easy

to find. Note the bias voltage must be regulated.

Direct FM (also called true FM) does not have inherent pre-emphasis, so this is done by the components, 18 k, 10 nF and 10 k. I have shown the pre-emphasis components on this circuit, but they would be better placed before the amplifier that drives the varicap diode. This is to allow for as much audio voltage as is possible to be applied to the varicap. Crystals have different deviations for the same audio input. Some require a lot of audio to produce the required deviation. The pre-emphasis network as shown reduces

the audio level that can be applied to the varicap. Placing the pre-emphasis network before the audio driving amp allows for greater audio to be applied to the varicap.

The audio amplifier driving the varicap should have a fairly low impedance, as a high impedance source nullifies the low cut of the 10 nF capacitor. An ideal amplifier for this task can be found in the December 1991 edition of *Repeater Link in Amateur Radio*.

*21 Waterloo Crescent, Lesmurdie 6076

Packet: VK6UU @ VK6BBR

E-mail: will@vule.faroc.com.au

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PRESS RELEASE

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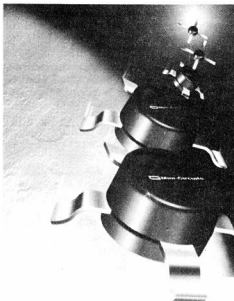
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Spotlight on SWLing

Robin L. Harwood VK7RH*

The last month of 1996 proved to be a rather tumultuous one for the staff at Radio Canada International. Just before the close of business on Friday, 6 December, the staff were assembled and told that Canada's shortwave service would cease to operate as from 31 March 1997 and that the 123 staff would lose their jobs. This was announced by the parent organisation, the Canadian Broadcasting Corporation, who cited the lack of available funding as the reason. The parent organisation also announced that 10 to 20% of the staff throughout Canada would also lose their jobs.

Naturally the RCI staffers were very depressed, as there had been huge public reaction to the earlier proposed shutdown which resulted in temporary funding being made available by the Federal Government in Ottawa. However, before the huge protest could be mobilised, the Canadian Minister for External Affairs hastily made a statement

in the House of Commons in Ottawa on Thursday, 12 December that funding had been found and that it was not the intention of the Federal Government to close Radio Canada International. It was also claimed that the CBC management had jumped the gun. Funding had been found for another 12 months to keep it going, which relieved those at RCI plus the millions of loyal followers of Canada's shortwave service throughout the world. Not surprisingly, funding for the domestic CBC organisation was not forthcoming so the big reductions in AM/FM and TV programming will go ahead.

Cutbacks seem to be continuing as Radio Vlaanderen International in Belgium announced that it was axing several language services and also reducing programming, although programming would be continuing in English and Dutch.

Radio Denmark commenced broadcasting a ten minute monthly English program last year but have already dropped it. A commercial Danish station, known as ABC Radio in Copenhagen, which was heard last year broadcasting from Kaliningrad in Russia, also ceased on shortwave after a management reshuffle.

The BBC World Service is continuing after funding was guaranteed to keep it going although some economies are to be introduced. The agreement also recognised the autonomy of the BBC World Service, although the funding does come from the Foreign and Commonwealth Office. The "Beeb" has been undergoing some painful restructuring but the Shortwave service has now emerged as an entity on its own while the domestic services are being re-organised, with the various sections being split up and opened up to privatisation.

Programming will now be made outside the BBC and opened up for tender. The first stage of the privatisation has just happened with all of the domestic AM/FM and TV senders being sold to an American concern. According to the London Daily Telegraph on Saturday, 4 January, all the UHF TV, VHF/FM radio and long and medium wave sites, have gone to "The Castle Tower Corporation", a consortium which is based in Houston, Texas. This group apparently already operates 1,200 broadcast sites in the US and Caribbean. They are believed to be paying 210 million pounds for the network of 740 sites.

The World Service sites will remain in the

hands of its management via a buy-out vehicle called "Merlin Communications International". The business is worth roughly 15 million pounds according to the Telegraph. The BBC will invest the proceeds from the sale of the domestic network into its proposed digital services. The proceeds from the World Service sell-off will go to the UK government.

Changes have been made also at our own Radio Australia. On 22 January, programming changes were made across the various ABC radio and television networks including Radio Australia. I believe from promos I have heard over RA that there will be an increasing emphasis on news and current affairs. Reports have also been circulating that programming in Thai, French and Cantonese will cease. Severe budgetary cutbacks were also made to Radio New Zealand's budget.

Port Moresby has actually increased its operating hours to be a 24 hour operation as from 6 January. I am easily hearing it on 4910 kHz as they are running 100 kW on that channel. Arthur Cushen, as quoted on Radio Netherlands, stated that the 24 hour operation was also extended to the various provincial stations, but I cannot confirm if the 90 and 120 metre stations on the so-called tropical bands, have longer hours.

Recently there was a mystery signal on 5719 kHz which generated quite a deal of comment on the various Internet shortwave newsgroups. The signal sounded very similar to an EPIRB, yet this was quickly discounted as it was far too strong and signals were monitored over a very wide area from here in Tasmania to Europe. Most of the speculation was that it was related to the US Navy and may have been transmitting from several sites simultaneously. The characteristics of the signal were very similar to an HF FAX sync pulse but most agreed that it was some form of digital signal and not analogue. Then, on 8 January, the signal characteristics altered and the sync pulses were replaced with digital hash. Sounds as if some kind of HF digital signal delivery system was being tested.

In conclusion, I would like to thank those who sent me e-mail about the numerous numbers signals on HF. I noted that activity did decrease over the Christmas-New Year period from some predictable sites while others continued unabated.

Well that is all for this month. Until next time, the very best of monitoring.

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Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

Micropower Transmitter

As always, I enjoy getting *Amateur Radio* and appreciate the work that goes into producing it.

I read Peter Parker's article in November *Amateur Radio* on a "Micropower Two Metre FM Transmitter" with interest.

Whilst I applaud the direction of the article I am uneasy about a few things. In an article intended for newcomers or those with limited knowledge of VHF transmitters, I believe Peter has simplified things too much in the aim to get them busy with their soldering irons.

It seems that the technical oversighting of the circuit diagram/circuitry missed a few points. The audio amplifier cannot work as there is no resistor in the collector lead of

TR1; it draws current but TR2 won't. If the mic gain moving arm goes to the emitter of TR1, TR1 will self destruct. Altering the DC operating conditions of transistors (or valves) in this way easily gets the device out of the linear area of operation, particularly if a largish signal is being handled. It also makes it susceptible to RF interference as I have seen in the past. There are better ways of controlling the audio gain rather than shifting the DC operating conditions.

Getting the crystal on to frequency is a bit awesome requiring up to three adjustments; once again the DC operating conditions of the transistor TR3 are changed. With so many adjustments, many people wouldn't know which to tweak for what result.

It concerns me that the output stage is a quadrupler. Experience with the original IGL transmitters showed that the fifth harmonic was radiated at a noticeable level too, particularly in areas with weak Channel 7 TV reception. Certainly Peter recommended using a bandpass filter, but how many of the builders of such a transmitter will build this filter? I would have to say that the final would have been better to have been a straight-through one or use it as a doubler, with the bandpass filter built onto the board. One problem with designs of this type is not having equipment to test and align them for best performance and no obvious spurious output.

I believe that Peter would have helped prospective builders by having an approximate layout of the board published using Drew Diamond's paddy board method.

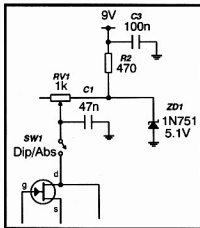
Rodney Champness VK3UG
17 Helms Court
Benalla VIC 3672

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Update

A Dip Meter Using the Lambda Negative Resistance Circuit

This very interesting article appeared on pages 15 - 19 in last month's issue, January 1997. Despite multiple proofing, an error appeared in Figure 4 on page 17. The 5.1 V 1N751 zener diode ZD1 was incorrectly drawn in reversed polarity. The relevant part of the diagram has been redrawn and appears here. Please correct your copy of the January 1997 issue of *Amateur Radio* NOW!



Amended circuit for zener diode ZD1 in the article A Dip Meter Using the Lambda Negative Resistance Circuit.

Silent Keys - January 1997, page 51

As reported by the man himself in the *Over to You* section in this issue of *Amateur Radio*, Ray Peterson VK6PW is NOT a Silent Key despite the accidental listing of him in the *Silent Keys* column last month.

Well-known Amateur Neville Williams VK2XV, SK

In the WIA News obituary for Neville

Williams on page 5 of last month's *Amateur Radio*, his year of birth was given as 1911. This is incorrect. Neville's birth was actually in 1915.

Page 1 of January 1997 Issue of Amateur Radio

At the top right-hand corner of page 1 last month the issue should be (surprise, surprise!) for January 1997, not 1996!!

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WIA MORSE PRACTICE TRANSMISSIONS

VK2BWI	Nightly at 2000 local on 3550 kHz
VK2RCW	Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm
VK3COD	Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz
VK3RCW	Continuous on 145.650 MHz, 5 wpm, 10 wpm
VK4WIT	Monday at 0930 UTC on 3535 kHz
VK4WCH	Wednesday at 1000 UTC on 3535 kHz
VK4AV	Thursday at 0930 UTC on 3535 kHz
VK4WIS	Sunday at 0930 UTC on 3535 kHz
VK5AWI	Nightly at 2030 local on 3550 kHz
VK5VF	Continuous on 145.650 MHz, 5 wpm to 12 wpm
VK6RCW	Continuous on 147.375 MHz, 3 wpm to 12 wpm

VHF/UHF - An Expanding World

Eric Jamieson VK5LP*

Some News at Last!

I'm not sure whether it's due to my appearance with an e-mail address or band conditions have improved (I suspect both) but its great to be at last receiving messages with information for inclusion in these notes. Some editing was necessary this time due to the sheer quantity of information, but don't let that stop you, please keep it coming!

Beacon Changes

After discussions with John VK3KWA of FTAC, the following changes need to be made to update the December 1996 beacon list.

1. Correct VK8AS to VK8RAS, on 50.047.
2. VK3SIX has moved to 50.293 for the summer VK0ZS tests.
3. VK2RHH 52.325 is definitely on air (reported heard December).
4. VK2RGB 52.425 permanently closed.
5. VK1RCC 144.410 now near Nimmitabel (see paragraph below). Likewise on 432.410 and 1296.410. Change call to VK2RBC.
6. VK3SIX on 144.435 not operating.
7. VK7RMC was replaced by VK7RNW which has now become VK7RAE.
8. Add CW practice beacon VK3RCW 145.650.
9. VK6GRPH is on 432.460.
10. Add VK8RAS 542.485.
11. Add VK3RXX 1296.530 Melbourne.
12. VK4RSD 2306.440 should read 2403.440.

50 MHz DX Challenge

Keep in mind this "Challenge", details of which were given in the December issue. Geoff GJ4ICD hasn't objected, so my idea of receiving your claims by 14 February 1997, for bulk forwarding to Geoff, appears to be satisfactory.

Please supply full details of the claimed contact, plus grid squares to six places; or, if only to four places, the locations (towns) as I have many listed with latitude and longitude; or, if known, the latitude and longitude of the two stations involved in the claim. I can check distance.

The northern hemisphere greatest distance was 8057 km. VK6 to ZL or FK8 would be useful distances. What about VK to South Africa? Perth to Cairns is a long way, and even further to PNG or Fiji!

Region 1 Bandplan

- 50.020 to 50.080 beacons.
- 50.090 CW centre of activity.
- 50.110 Inter-continental DX calling frequency.
- 50.150 SSB centre of activity.
- 50.185 Crossband centre of activity.
- 50.200 MS centre of activity.

On the Bands

Guy Fletcher VK2BBF advises that: "The Canberra beacon moved some months ago. It is now near Nimmitabel, SSE of Canberra and in QF43, under the care of Rod VK2TWR. It is still on 144.410 MHz, but the call is VK2RBC."

"On 12/12, Gordon VK2ZAB managed a contact with Ray ZL2TAL in New Plymouth at 0200 on two metres. This is believed to be the first

two metre contact this season from Sydney area to New Zealand."

Ron Cook VK3AFW advises: "Andrew VK7XR reports good Es on six metres on the evening of 5/12. Skip shortened from VK4 to VK2 at Pt Kembla. Six also opened into Adelaide. The Townsville beacon was copied on two metres, but no one responded to many calls on 144.100!"

"At 2153 I worked Trevor VK4AFL 5x9+ on six metres and at 2158 Adrian VK2FZ4 at 5x9. Adrian was copying the VK7RAE/b and reported that on the two previous days at around 0000 he enjoyed a half hour opening to ZL on two metres!"

"On 6/12 (UTC) around 2230 I worked Andrew VK7XR at 5x6/7 on two metres SSB and he reported that again the previous evening the Townsville two metre beacon was heard, but still no response on 144.100! [When this happens phone somebody in Townsville if you want answers... VK5LP]."

"We tried 432 but nothing heard. Andrew had previously worked Rob VK3DEM on 50, 144, 432 and 1296 MHz with signals 5x3 on 1296. Max VK3TMP broke in to announce he had just worked Trevor VK5NC on 1296, 5x7 both ways."

"On the afternoon of 8/12 six metres opened with ZL1, 2, 3 and 4 working VK1, 2, 3, 4, and 7. Stations active from VK3 included John VK3ATQ, Norm VK3DUT and Gavin VK3HY. At about 0800, Andrew VK7XR phoned to say VK pagers were being copied in ZL. At 0847 Arie VK3AMZ worked ZL4DK on two metres SSB and shortly after Norm VK3DUT did likewise. Rob VK3DEM reported that Ian VK3SP worked ZL3TIC and ZL2ADT on two metres FM. Ian runs 8 watts!"

"On 19/12 Andrew VK7XR worked Des VK3CY on two metres SSB at 5x1 both ways, a path around 600 km."

"On 20/12 Andrew worked Rob VK3DEM on 50, 144, 432 and 1296 MHz, with signals weak on 50 MHz but excellent on 1296. They talked for some two hours on 1296. The VK7RAE two metre beacon was inaudible at this time but the 70 cm beacon was S5."

"I now have a sloping wire dipole at 25 feet on six metres and running an FT690R plus HB 40 W amp, all on loan from Andrew VK7XR. On 21/12 at 1003 hrs I worked John ZL3AAU 5x2 at 1006, Keith ZL3TLG also 5x2, and at 1022 Mike ZL3TIC 5x3/5x5. At 2255 the ZL3SIX beacon was 579. ZL3ADT was worked by Quentin VK3DUQ. Gavin VK3HY and Laurie VK3YDE."

"On 22/12 six metres opened to southern VK4 and northern VK2 with a brief opening to VK5. Skip got down to around 600 km and at one stage there were QSOs every 5 kHz; from 50.110 up to and beyond 50.210."

"My log shows: 22/12: 0321 Neville VK2Y0 5x7, using a dipole; 0327 Keith VK2AT, also using a dipole; 0354 Austen VK4TN; 0426 Adrian VK2FZ4; 0437 Steve VK5AM, signals barely readable at first but up to 5x7 at the end; 0441 Brian VK4RX, another dipole operator! 0447 Gary VK4AR; 0512 David VK2BA; 0525 Keith VK2ZER; 0537 VK4RGG beacon 529 copied up to

0906, with some dropouts; 0604 Peter VK2BIT 5x5 both ways."

"On 24/12 six metres again open to ZL with TV in all day. Also open to VK4. On two metres Norm VK3DUT at his new Lakes Entrance QTH worked ZL3AIC, and at 2347 Rob VK3DEM worked Mike ZL3TIC 5x2."

"Some two metre SSB operators in New Zealand are Steven ZL1TWR, Cliff ZL1MQ, Bob ZL3NE, ZL4AAA, ZL1SL and Mike ZL1IU. Mike's QTH is about 430 m high on the spine of the North Island and north of Auckland. He can see water to the east and west and frequently listens to FM programs out of Sydney. He recently worked Doug VK3UM and others."

"25/12 on 144 MHz: 0016 VK4TZL 5x9. He also worked VK3CAT, VK3DUQ and others. 0027 Tony VK4CH 5x8. Tony also worked VK3UM. VK3CY reported working VK4s TZL, AFL, OE, CH on two metres between 0000 and 0030."

"26/12: Worked VK2FLR on 144.100 529."

"27/12: 0859 144 MHz: Andrew VK7XR, 5x9+30 dB but only 5x3 on 432 MHz. The following morning saw lots of activity on the aircraft enhancement calling frequency of 144.200. VK1BG was heard working VK3s AFW, BDL, UM, ZLS, TBM, GRL, CSJ. VK3UM also worked VK2s ZAB, FWB (near Dubbo). Later that evening VK3CY worked VK5AKK and VK2ZAB on 144 MHz."

"28/12: Worked Adrian VK2FZ4 on 144 MHz SSB, exchanged contest numbers via meteor, between 6 and 7 am Melbourne time."

"29/12: VK3XLD/P Mt Napier near Hamilton worked on 144 and 432 MHz. David is running about 30 W on both bands and using NBS design Yagis, six elements on two metres and 10 elements on 70 cm. Another portable, Ken VK3DQW, near Nagambie worked on two metres. Ken has about 60 watts out. Both these stations are using an IC202 as the prime mover. While these 1970 rigs are not expensive to buy, given a VK3 and a GasFeT preamp, they perform quite well."

"30/12: VK3AFW worked VK1DO and VK1BG via aircraft. VK2ZAB worked Max VK3TMP. Adrian VK2FZ4 worked Ron VK3AFW on two metres via meteors but neither station copied the complete Ross Hull numbers this time. Adrian also copied VK3CY briefly and commented that he has heard loud bursts from Warren VK3BWT, at Mallaacoota."

"Ian VK3ALZ is back on air. The September storms wiped out two arrays and one rotor. He has a 10 element long Quad on two and a Yagi on 432. The 50 and 1296 MHz beams will be put up when a new rotor is found. The 2.4 GHz dish was written off."

"Mike VK3BDL is expected on 1296 as soon as he erects a Yagi. Des VK3CY at Wedderburn 200 km NW of Melbourne, has a new rig, an IC821H. His signal into Melbourne is 9+ on both 2 and 70."

"Adrian VK2FZ4, now has 4x70 elements on 1296 MHz. This replaces the previous two loop Yagis. He can now hear Lyle VK2BE, 809 km south every morning on scatter. Signals are usually too weak to exchange info, but the signal can be detected and used. When an aircraft is in common view signals are up to S8 for a minute. He needs an aircraft to get any 1296 MHz signal at all from

VK2DVZ, some 550 km away, but it is a reliable path when the aircraft are there.

"I continue to work Andrew VK7XR on two metres CW most weekday mornings. (This seems a bit feeble compared to Adrian's activity). We've had some good phone contacts recently, but no joy on 70 cm this season. Where are all the other VK7s?"

Ron VK4BRG by e-mail said: "The following was sent to you by packet but became lost in the system!"

"1/11/1: Six metres: 0035 VK3DQJ plus other VK3s, 1050 VK2FLJ near Sydney plus Brisbane area stations. 12/11: 0248 VK5BC, 0444 VK3 area, 0852 VK2BA now living west of Coffs Harbour. 13/12: 2240 VK5BC and VK5RO, 2258 VK2BA.

"14/11: 1120 146.625 Auckland, open well either side of time frame mentioned to and from here to at least VK2 border into ZL. 1137 146.700 repeaters. Noumea repeater on 146.8 worked from area to the north of Brisbane. 2347 6 m VK2XN Narrabri, 2352 6 m VK2AIF near Sydney.

"Six metre openings often provided simultaneous paths over large variations of distance ... also noted were the rather short skip six metre openings. Short skip conditions were also observed on 20 m HF BBS operations.

"28/11: 1159 6 m VK4TZL Hervey Bay, quite short skip for six metres, 2301 144.100 VK4ZHL near Brisbane, 5x2 each way.

"29/11: 0216 144.100 VK4TZL Hervey Bay. He reduced power to 5 W but still SR, 0921 50.130 ZL3NW.

"30/11: 2107 146.800 FK8FL Noumea. Their repeater S9+ (about 1800+ km). 2109 146.800 FK/FSLSP 110 km north of Noumea.

"01/12: 0817 146.800 Noumea repeater S9, no replies, 0827 50.120 VK3CNX Melbourne, 1005 to 1219 Noumea repeater, no replies, 2000 to 2100 two metre repeaters south to VK2 border. VK4RTT beacon Bunya Mountains [New beacon? Details to VK5LP please.]

"05/12: VK4NW 144.100 Bundaberg.

"General comment ... lots of propagation, very little activity! A high has been sitting over the Coral Sea for three days now."

From Don Graham VK6HK: "On 14/12 we had a sample of Es DX with VK5 and VK2 on 50 MHz into Perth. Worked VK5RO and VK2YLO between 0028 and 0050.

"I was interested to hear too that there is a move in Region 1 to move the 50.110 calling channel to 50.150. I reckon that is a tremendous idea if only it could be promoted world wide in time for the next solar maximum. [Refer to Region 1 Bandplan item above ... VK5LP.]

"Saw an interesting new 50 MHz antenna system last week in a visit to Bill VK6ACY at Muchea, just north of Perth. Bill has erected an array of four 7 element beams on a 20 metre tower in the "H" frame format. His linear is in a separate building near the base of this mast, with the shack itself about 100 metres away. There is a receive preamp at the mast head too. All with low loss coax. There could be some big signals from Muchea over the summer and beyond! By the way, he has a six element full size 20 metre array on a 30 metre mast, a three element 7 MHz array on a separate 30 metre mast, a four mast phased

vertical for 80 metres, plus a 75 metre mast and 80 metre Yagi approved for erection!"

Andrew VK7XR faxed the following: "A large two metre Es and tropo opening occurred on 4/1/97 from 0533 to 1050. The more notable contacts were as follows and most were 5x9.

"Via Es: 0533 VK4KZR, 0542 VK2BRG, 0550 VK4AFL, 0553 VK4JSR, 0556 VK2FZ/4, 0557 VK4IC, 0643 VK4WTZ, 0647 VK2DVZ, 0648 VK2XKE, 0651 VK2XPG, 0652 VK2BBF, 0653 VK4ABW/2, 0654 VK4AR, 0701 VK4APG, 0711 VK4UTT, 0720 VK4KGP, 0808 VK2BO, 1006 VK4KOH, 1008 VK4LO, 1028 VK4PU, 1029 VK4ZBH.

"Via tropo: VK2TWR 5x9 144 5x2 432, VK3TMP 5x9 144 5x5 432 4x1 1296, VK3DEM on 50, 144, 432 and 1296 all 5x9, VK3BRZ 5x9 144 and 5x5 432, VK3BWT 50 and 144 5x9, VK3DUT 50 and 144 5x9, VK3XPD 144 and 432 5x1.

"On the same day, there were numerous six metre contacts. Also, on 2/1 and 3/1 more than 40

contacts on 50, 144, 432 and 1296 were made across Bass Strait to Melbourne, too many to mention here."

John VK3ATQ reports that on 18/12 at 2030 he worked Bob VK7JR on King Island for the first time on six metres. Bob is a white-stick operator and is using a two element Quad made by John. Distance is about 250 km. Both stations were running 100 W SSB. John uses an NBS Yagi at 20 m height and also works Andrew VK7XR, on CW most mornings on 50.120 over a 420 km path.

Steve Gregory VK3OT sent in a long list of stations worked and interesting signals heard out-of-band which are pointers to six metre openings, particularly as they relate to eventual long distance F2 contacts. This is valuable information for true DX operators; the signals are there if you look for them! It's unfortunate that space does not allow me to publish more than the representative sample in List 1.

List 1	Time	Frequency	Log entry	Remarks
	21/12:			
	0000	46.172	Video	59+ TV Channel 0 video.
	0015	46.2610	Video	55 TV Tamworth video.
	0030	28.262	VK2RSY/b	559 Sydney.
	0045	52.325	VK2RHV/b	559 Newcastle.
	0100	51.672	Sound	59+ Channel 0 pix locked in.
	0015	40.670/680	Pagers	59+ Northern VK2 hospital.
	0030	49.770	Phone	55 Northern VK2 farmer.
	0030	50.0775	VK4BRG/b	559 Sarina, north Qld.
		50.0575	VK4RGG/b	599 Nerang, Qld.
		50.110	VK2QE	59 CQ call.
		45.240/250	Video	319 Weak ZL video.
		49.830	Carrier	55 Room baby minders.
		28.262	VK2RSY/b	599+ Sydney.
	0100	50.0575/0775	Beacons	539 Both beacons weak.
	0130	50.120	VK2QE	55 VK2QE working VK3 copied.
	0300		Open to VK4	past few hours.
		50.0575	VK4RGG/b	599+ Nerang, Qld.
		52.345	VK2RHV/b	579 Newcastle, NSW.
		50.160	VK4TZL	59 Working Gippsland.
		52.005	FM Sound	Tamworth Ch 0 stereo.
		52.150	FM Sound	Spurious of Ch 0 Toowoomba.
		52.450	VK2RSY/b	559 Beacon Dural NSW. Es.
		28.261	VK2RSY/b	599 Beacon Dural NSW. Es.
		51.915	FM Sound	Stereo subcarrier WIN TV.
		51.672	FM Sound	Primary Carrier.
		57.2600	Video	
		57.2604	Video	Interstate Ch 1 TV.
		57.2400	Video	
		64.260	Video	
		64.2604	Video	Interstate Ch 2 TV.
	0400	49.7400	FM	Illegal cordless phone VK2.
		49.850	FM	59+ Baby room minder 50 mW.
		49.830	FM	Continuous Baby room minder 50 mW.
		50.0575	VK4RGG/b	59+ Nerang, Gold Coast, Qld.
		50.140	SSB	VK2AT working VK3YDE.
		45.2500	Video	Wellington NZ Channel 1 TV.
	2000	28.2300	ZL2MHF/b	559 Mt Clime RE72.
	2100	28.261	VK2RSY/b	599 Sydney.
	2145	45.250+/-	Video	All ZL offsets.
	2215	55.2604	Video	All ZL offsets.
		50.040	ZL3SIX/b	559 RE66.
		62.260	Video	559 NZ TV Channel 3.
	22/12			
	0000	50.110	ZL2/3	59 Working VK4 and VK3.
		50.140	ZL2MQ	59 VK3DUT.

Time	Frequency	Log entry	Remarks	
0100	50.130	ZL2TPY	59 VK4AFL.	
	45.2396	ZLTV	599+	
	45.2500	ZLTV	599++ Wellington.	
	45.2502	ZLTV	599	
	45.2602	ZLTV	599	
	45.2609	ZLTV	599	
	50.750	FM Sound	59+ Comedy Show.	
	51.000	White noise	59+ Nican stereo sound.	
	55.2412	Video	55 ZLTV.	
	55.2500	Video	55 ZLTV.	
	50.040	ZL3SIX/b	559	
	52.345	VK4ABP/b	519 Longreach, very weak.	
	46.2400	TV	599 Northern NSW.	
	46.172	TV	599+	
	Short skip to Mallacoota.			
Backscatter to VK3 and VK5.				
0230	49.830	59	Room minders.	
	50.0575	VK4RGG/b	599 Nerang, Qld.	
	52.420	VK2RSY/b	519 Scatter.	
	52.345	VK2RHHV/b	559 Direct.	
	52.150	Spurious	59 FM from WIN TV.	
	52.005	Stereo FM	59 Tamworth Video 46.2610.	
	51.915	FM Main	59 Toowoomba Ch 0.	
	51.750/740	FM Main	59 Sound carriers.	
	50.120/170	Lots of interstate Es 59+ all eastern states.		
	Ops observing the no QSO on 50.110 generally.			
	50.0570	VK7RAE/b	519 Backscatter.	
	45.740/750/760	New Zealand TV		
	52.345	VK4ABP/b	559 All faded out.	
	49.7500	Video	319 Longreach back in.	
	48.240/25/26	Video	319 Es link to afternoon TEP.	
0430	52.325	VK2RHHV/b	559 Newcastle.	
	45.2500	Video	519 Wellington b/s N/E.	
	52.420	VK2RSY/b	559 Sydney, short skip.	
	29.700	Carrier	599+ Unknown location with QSB.	
	28.262	VK2RSY/b	599+ Sydney.	
	30.275	Carrier	599+ Pulse modulation and QSB.	
	52.525	VK2HT	59+ Old FM channel, Newcastle.	
	52.325	VK2RHHV/b	599+ Newcastle.	
	49.750	Video	559 Vladivostok, warbly outlet.	
	49.750	Video	xxx Fade down.	
	0545	TV video all over: 48.2604, 49.7618, 49.7548, 49.7620, 49.7457, 7463, 7474, 7500, 7502, 7504, 7536 and 7544. VK5LP and VK5ZLX also copying video 48.250 59+ into Adelaide.		
	As path shifts S/E E2 offsets building up: 48.2396, 2400, 2402, 2496, 2500, 2502 and 2604 49.7463, 7474, 7477, 7499, 7502, 7547 and 7462.			

Glenn VK4ZTL reports as follows: "15/11: 50.150 0101 VK3DET 5x5, 29.300 0253 JA1FQN 5x9, 146.500 0325 VK4ACC 5x9.

"17/11: 50.140: 2226 VK3FFW 5x9, 2302 VK3CNX 5x9, 2308 VK5AKK 5x9, 2311 VK5BC 5x9, 2313 VK3EBR 5x9, 2314 VK3AFW 5x5/9, 2339 VK3DUT/p 5x9, 0018 VK3JWZ 5x7, 2323 VK3ACM 5x9.

"28/11: 144.100 0218 VK4BRG 5x9, 0847 VK4IC 5x9, 50.110 2300 VK4BRG 5x5.

"8/12: 144.150 0020 VK4KK 5x9, 0032 VK4OE 5x5, 1296.100 0945 VK2FZ4 5x5/4x1, 11/12: 50.140 2307 VK3DQJ 5x9, 2324 VK2BIT 5x8, 14/12: 50.120 0205 VK5SAIM 5x7, 15/12: 144.200 2104 VK4BKM 4x1 Townsville - meteor scatter contact, 1296.150 2252 VK2FZ4 5x8."

Log from **John VK4FNQ**: "23/12: 50 MHz: using 1/4 wave vertical while Yagi is repaired: 2350 ZL3NW, 0233 VK8RH 5x7, 0233 VK2KL 5x5, 0257 VK2BRG 5x6, 0303 VK2TP/m (Wellington NSW) 5x1, 2215 VK2AIF 5x7, 2241

VK2TWR 5x8, 2350 ZL3TCV 5x3, 24/12: 50 MHz: 0012 ZL4TBN 5x9, 0032 VK3JWZ/m 3x1 mobile 40 km south east of Melbourne, 2320 VK4AFL 5/9+.

"25/12: 144 MHz: 0042 VK4OE 5x9, 0044 VK4AFL 5x2, 0046 VK4AR 3x1, 0110 VK4TZL 5/9+, 0139 VK2DVZ 5x7, 26/12: 50 MHz: 0130 hrd VK8RH 319 (Rex was in and out for an hour but very weak), 0758 ZL3NW 5x9."

Ron VK4BRG reports on a two metre opening: "25/12: 0011 VK3WRE Traralgon, 0015 VK3HV Morwell running 10 watts, 0121 VK2DVZ Taree. Numerous stations in Sydney area, 0128 VK2BA Dorrigo was heard, most northern station, 0154 VK1VP weak CW signal. Various other paths were worked. Six metres open to southern states."

Internet Six News

From On-line Six Metre Magazine from **Geoff G4JCD** and others as appropriate.

6/12: VK6ACY has completed a new array of 4 x 7 element long Yagis, each with a 25 foot boom.

Spacing is 22 foot stacked and bayed. Mast head LNA and 400 watts PEP. Overall height is 80 feet. He is mainly looking across the Indian Ocean to South Africa, but the array is rotatable so he is prepared to consider any sched, in any direction ... e-mail him at vk5xacy@wantree.com.au

12/12: **Peter PY5CC** said: "Via TEP I heard several USA stations from the west coast, W7 on 50 MHz. I had a good TEP to the northern part of South America and the Caribbean, with the V44K J3EOC, YV4AB, HIOVHF beacons about S1 to S9."

16/12: 0755: VK7WR, VK7AB, VK7FB/m, VK7GUN, 0840: VK6RPH/b (Perth) VK6RBU/b (Bunbury) and VK8RAS/b (Alice Springs). Perth beacons copied for about an hour but no stations heard. Stations active in Darwin include VK8RRH, VK8AH, VK8ZMA, VK8LM and VK8AG ... de Rex VK8RH.

25/12: VK8 Es Report: 25/12 0000 VK4JH, VK1VP, 0025 VK4FNQ, VK8RAS/b, 0145 P29JFS. Had confirmation from VK8PN that he has heard the YB0ZZ beacon (50.042) so this is now confirmed as a working beacon from YB0.

Info passed on from Kerry ZL2TPY: In about two weeks 5WIAU will be active on Western Samoa. He will run 5W1WS as a beacon on 50.050 and will break it to operate if requested. Fax +685-26711. Number is good. (Country code is 685 in VK but 85 in ZL???) ... de Adam VK3ALM QF22oa.

The US had winter Es openings during December on 9, 10, 13, 16 (major) and 20.

Records on 5.7 GHz

Australian amateurs are gradually extending the 5.7 GHz distance. Starting from a modest national record distance of 191 km established in 1991, it was pushed to 237 km on 30/10/96 by Alan Woods VK6ZWZ/p at Cervantes, north of Perth, and Al Edgar VK6ZAY/p at Falcon, south of Mandurah. Both used power levels of about 60 mW.

Then Alan Devlin VK3XPD/p at Mt Dandenong, near Melbourne, worked David Minchin VK5KK/p at Mt William, western Victoria, over 259 km on 6/11/96. Both were using about six watts.

On 11/1/96, Neil Sandford VK6BHT/p at Geraldton worked Alan Woods VK6ZWZ/p at Fremantle over a 379 km path for a new record. Both were using about 60 mW.

The competition between the eastern and western residents of the continent is bound to see this record broken soon! ... de VK6KZ.

David VK5KK comments: "Looks like the VK6s have pinched our 5.7 GHz National record by working 379 km. Of course they should realise that we will pinch it back soon, just in time for them to pinch it back in the new year!"

Roger VK5NY reported that: "On 14/12 at 2.30 am local time to 3.15 am, Alan VK2DXE and I tried with little success to work meteor scatter between here and Sydney. The Geminids shower was expected to peak at this time. We both received short bursts of call signs and other bits but no long bursts. A complete contact could not be managed."

"I have never had much success with meteor showers but I am prepared to give it a try. I often find random tests outside expected peak showers give much the same results. Perhaps we don't

catch the showers at the right time. The odd hours at night don't help much either."

Other Contacts

John VK3KWA reports: "On 31/12 at 0600 Murray ZL3ADT worked Norm VK3DUT on 144.100. At the time six metres was open and VK2RSY/b on 28 MHz was very strong."

"30/12: VK3XLD/P at Mt Richmond QF01 with 30 W and 10 el on 144 and 10 W and 10 el on 70 cm worked Melbourne and Bairnsdale on both bands. Only VK5 stations heard were VK5VF and VK5RSE. 31/12: VK3DEM worked ZL3ADT S9+20 on 144, also heard ZL3TIC."

"1/1: VK3TMP heard VK6KZ/P on 144 at 0200, and VK8GF at 0230. VK3ACX heard VK6AS at 1210."

"2/1: Around mid evening, VK3AXH heard two VK6 stations talking on two metres. VK6KZ heard VK3XPD worked VK3ZQB. At 1205 VK6AS heard briefly here on 144.100. VK5DK worked VK3ACX, VK3XPD and VK3KWA on 144, 432 and 1296, and VK3BRZ on 144 and 432. VK3ACX heard VK6KZ working VK5NC around 1250."

25/12: John VK4KK reported Brisbane stations working VK5 on two metres."

26/12: VK2BOD on six metres worked Eric FK8GM in Noumea at 0627. Signals 5x5. Others to work him were two VK1s and three VK2s."

Steve ZL1TWR reports two metre openings to VK2 on 24/12 and worked VK2ZAB and VK2BBF at 5x9, and on 26/12 between 0115 and 0200 worked VK2BRG, VK2MZ, VK2SC and VK2DVZ on 5x9. Tried 70 cm but no results."

UK and Europe

Ted Collins G4UPS reports that he compared the number of QSOs during October 1995, when SM7AED was active every morning, with 1996 when he was available only for a few days, and found that 1996 was better than 1995. Total QSOs in October 1995 were 91 (65 CW and 26 SSB), while October 1996, despite SM7AED not available, there were 89 (58 CW and 31 SSB)."

During November, Ted managed to work D, I, G, OE, OH, OZ, SM, SP and S51. Most contacts appeared to be with SP (Poland) stations."

North America

Emil Pocock W3EP writing in *The World Above 50 MHz* in QST reports that Es openings occurred on October 8, 9, 10, 15, 16, 23, 24, 25, 28, 29, 30 and 31. The real surprise were the openings of 9 and 10 October, during which the E-skip MUF soared through 144 MHz for more than an hour. Two metre contacts reached distances to 1675 km."

New Zealand

Cliff ZL1MQ in his report lists some interesting contacts. In addition to the many six and two metre ZL to VK contacts, he lists a number on 432 MHz. They all involved ZL3NE on 14/11: at 0731 to VK2FZ/4 559 and at 0750 5x5 SSB, 0802 VK4JSR 5x6, 0848 VK2BRG 5x5, 1107 VK4AFL and 1110 VK4ZQ."

Last November, ZL3NE on two metres worked VK2BRG, VK2FZ/4, VK4APG, VK4IC, VK4JSR, VK4ARN, VK4ZQ and VK4AFL. Anyone try 1296 MHz?

EME Activity

From Michael Farrell VK2FLR and his score in the ARRL EME contests on 144 MHz.

27/10: 1125 K5GW, 1205 KB8RQ, 1215 K2GAL, 1650 S5SMIX, 1820 S5MFRH, 1845 OESJFL, 1900 S5BSZ.

23/11: 0915 VE7BQH, 1037 JL1ZCG, 1057 W5UN, 1724 I2FAK, 24/11: 1059 K7CA, 1657 SM2CEW, 1703 F1FLA, 1826 PA2CHR, 1832 ISJUX.

16 QSOs x 100 x 11 multipliers = 17600 points.

"I missed half of the first weekend. I also heard quite a few others, and a number of unidentified stations called me."

"The contest also produced a raft of sched requests which I am working through at the moment. Some of the more interesting were from G4YTL, a two-Yagi station near Oxford and F/G8MBI with a single 6.6 wavelength Yagi with switchable polarisation."

"From published scores and lists of stations worked, it seems I was the only VK station available on 144 for the contest, although I did hear K5GW, one of the biggest stations at the moment, sending a report to VK2FZ/4. Where are VK3AMZ, VK3AUU and your VK5 mate?"

"Speaking of VK2FZ/4, Adrian seems to be workable most of the time from Sydney by the better-sited stations now that he has raised his power to 400 watts."

"I managed a contact with Adrian on 8/10 when conditions were somewhat better. About 35 minutes later I also worked VK4ARN at last, after spending years listening to Gordon working him with consummate ease."

"The weekend aircraft circuits burble on, but with reduced participation from Melbourne, as far as we can tell up here. Bob VK3AJN is a regular, as is Warren VK3BWT at Mallacoota just over the border. Warren was formerly VK2BWT and quite active from Young. Canberra is much quieter now that VK1BG is away."

Chas VK3BRZ reports: "The weekend of 7-8 December was the ZL VHF Field Day, and as it happens we were treated to a great weekend of six metre propagation across the Tasman."

"A: 0840 ZLADK came through loud and clear

calling CQ on 144.100. I immediately replied, but the propagation only lasted 20 seconds or so, and no contact ensued. Minutes later Arie VK3AMZ worked him at 5x7, followed by Norm 3DUT. I missed out yet again! This was a re-run of the experience I had back on 20 January this year, with ZL1TWR. Everyone else worked him but me! It seems I am condemned to always being the proverbial bridesmaid!"

"One observation I can make from the admittedly few two metre openings to ZL that I have experienced is that the opening seems to start at the western part of Victoria, moving quickly east. It is very selective, in that whilst I live only 25 km south-west of Arie, I could not hear the faintest sign of the ZLs. By the time the opening reaches eastern Victoria, it lasts long enough for a good number of VK3s to make the contacts. The lesson is that I have to be on the ball early, and hope that the ZLs realize that there is no time for rag-chewing."

"That last point is critically important, as I think that the ZLs have been conditioned over the years, by regular tropo and Es openings to the VK2 coast, some of which last for hours, or days in the case of tropo. We VK3s don't have that luxury."

Closure

Due to space limitations there has been considerable pruning and re-arrangement of information received for this month. If I have missed anyone please accept my apologies, but the task has been almost overwhelming, having taken many hours of sifting and sorting."

Closing with two thoughts for the month:

1. A wedding is an event, but a marriage is an achievement, and
2. If you think there are no new frontiers, watch a boy ring the front doorbell on his first date.

73 from *The Voice by the Lake*.

*PO Box 169, Meningie SA 5264

Fax: (085) 751 043

Packet: VK5SLP@VK5WI#ADL#SA.AUS.OZ

E-mail: vk5slp@ozemail.com.au

ar

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

MA (Maxwell)	BASTIN	L30253
R V (Ron)	CROSBY	VK2BCH
W C	DWYER	VK2FXD
E L (Eric)	COLYER	VK2JN
S E (Stanley)	BROWN	VK2PQ
J (John)	MORAN	VK3ABQ
P S (Pat)	LANG	VK3ADN
H O	KELLAS	VK3AHK
E G V (Ted)	GABRIEL	VK4YG
A H (Arthur)	JOHNSTON	VK5AAJ
C A (Rev)	REVELL	VK5ACO
W E (Bill)	TANNER	VK7TE
R E	DIVISON	VK9ND

Ron (Bing) Crosby VK2BCH

I wish to inform you of the recent death of Ron (better known as Bing) Crosby VK2BCH. Ron passed away on 20/12/96, aged 79 years, in Cape Hawke Hospital after a long illness. His funeral was held at St Albans Church in Foster.

Bing was known to many DXers as he made quite a few trips to the Pacific Islands, Fiji, Rotuma, South and North Cook Islands, Samoa, Vanuatu and Lord Howe Island. He was taken ill on his last trip to Rotuma and never properly recovered, spending a lot of time in and out of hospital.

Bing wrote a few stories on some of the trips to the islands which have been published, and were interesting reading.

Ron was an adopted child in the land of his birth, England, and when old enough joined the British Army. He was a Regimental Sergeant Major, saw service in North Africa in the desert in WWII, also in France and Germany, and suffered war injuries. He also served in Asia for the British Army and received an award from the King of Malaysia in person, a rare medal of honour. Ron also served 10 years in the Australian Services, so notched up 35 years in all (an incredible record).

Ron leaves a wife, Susie, who has been a great support, and to her I'm sure all hams will extend their deepest sympathy. We say farewell, Bing, for a job well done.

Des Hancox VK2AGA

John Moran VK3ABQ

It is with deep regret that I announce the passing of John Moran VK3ABQ, ex-RAAF, -RAF, on or about Christmas Day 1996 after suffering an apparent collapse at his home in Box Hill South.

John had many friends, and he was always keen to lend a hand to help and promote the cause of the amateur radio hobby. He had been on the broadcast committee of the WIA in the past, was a volunteer health worker at Box Hill Hospital, and a current Boroondara Council "lolly-pop" man at Surrey Hills State School for many years.

John will be sadly missed by all who knew him. We know that his achievements in life will be a hard act to follow. 73 John.

Geoff Tresize VK3CNX

H O Kellas VK3AHK

It is with regret that I inform you of the passing of my father VK3AHK (Member 123765) on 1/1 1/1996.

Dad was very proud of his amateur radio hobby. He obtained his first licence in 1946 and maintained it through to the present. We found a collection of QSL cards which we have handed on to another Ham. I am also aware that Dad had sent a larger collection to a collector and had donated some of his early gear to the Moorabbin Club.

On going through his property we found all his call logs from his very first call. Although he had not made a contact since January 1995 he still maintained written contacts with two Hams in the USA, one in South Dakota and the other in Texas.

He was also pleased with his achievements in contacting all 50 States in the USA and having contacted over 100 countries, when that was more difficult prior to the breakup of the eastern European countries.

John D Kellas

Edmund Gordon Vincent Gabriel VK4YG

Ted Gabriel was born in December 1919 at Broken Hill. He passed away on 25 November 1996 and was laid to rest in Toowoomba.

The son of a mining engineer, Ted was raised in Zeehan, Tasmania, then moved to Sydney. He studied engineering and developed an interest in aircraft. He obtained his pilot licence in 1939 prior to enlisting in the RAAF. Ted served in Darwin, Butterworth, Sumatra and Java where he was captured by the Japanese and spent time at the infamous Burma Railway.

He participated in many sports as a youth, with fair success, but after the war in 1950, he studied for and passed his examinations for an Amateur Radio Licence, and began operation as VK2AVG. With this callsign, he transmitted far and wide from Northbridge in Sydney, and mobile from the transmitting station which almost filled the boot of his little Austin A40, before moving to WA in 1967. As VK6TG he operated mainly from Port Hedland, and Mt Newman, where he also worked.

After the death of "Tommy", his wife, and his move to Cairns in 1973, he applied for, and was issued with the station callsign he was using at the time of his passing, VK4YG, and became well known and respected throughout the state, especially for his valuable work with the Wireless Institute Civil Emergency Network (WICEN), and was awarded the Distinguished Service Award for his assistance with this body. This award was given by the WIAQ for his receipt and relay of the first radio signals out of Darwin following Cyclone Tracy in 1974, transmitted by a Darwin radio amateur from his car. This relay operation was to continue for some 9 to 10 days, until normal official communications was restored.

Ted was the North Queensland Co-ordinator for WICEN, and wrote many articles on the subject for the national magazine of the Wireless Institute. For this work, he was also awarded the National Medal for Service from the SES.

He was a very active member of the Cairns Amateur Radio Club, where he was available whenever needed for all club activities. He was instrumental in obtaining permission for the club to erect a repeater station at the site of the Bellenden Ker television mast. After his move to Ravenshoe, he also became an active member of the Tablelands Radio Club, where he was greatly respected as a valued experienced member.

He erected his radio masts and constructed a lot of ancillary equipment for use in the house and radio shack, especially after

moving into the house he built at Ravenshoe. The highlight of each day was the daily radio scheds he religiously kept with his old mates, Peter Alexander VK2PA and "Snow" Hodder VK2DV, near, and at Port Macquarie, NSW. Ted passed away whilst talking to Snow during his sched on the morning of 25 November age 76.... ("Snow" thought Ted had had a power failure. He was spot on really. The only difference was that it was a "personal power failure". Ted would have had a grin at that.)

RIP Ted Gabriel

Vale Ted Gabriel, RAAF pilot, ex-POW and survivor of the infamous prison camps along the Burma Railway, Amateur Radio Operator VK2AVG, VK6TG and VK4YG from 1950-1996, QANTAS Airline pilot, civil construction engineer, willing community service worker (SES and WICEN), social sportsman, unselfish friend to many, and fond family man. At Ted's funeral, the eulogy was read by Fred Tubbs, also a survivor of the Burma Railway, and with whom Ted was first captured in Java. He and Ted spent the rest of the war looking out for one another.....

Tablelands Radio and Electronics Club
Dale McCarthy VK4DMC
Secretary

W E (Bill) Tanner VK7TE

It is with regret that I record the passing on 10 December 1996 of Bill Tanner, aged 87 years.

Bill lived all his life in Launceston and was engaged in various avenues of servicing before joining the RAN during WWII, retiring as a CPO. Later he joined the PMG and ABC as a technician. He had one philosophy about fault-finding - everything can be fixed - it just needs getting down to basic theory whether the equipment is ancient or modern, a field in which he excelled.

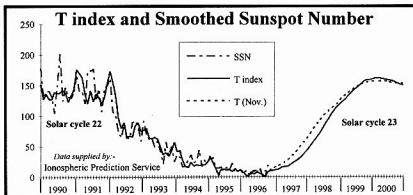
He was an accomplished musician on several instruments, particularly string bass on which I had the pleasure of joining him many times, and a life member of the Musicians Union, an honour of which he was justly proud.

Bill lived his life to the full in every way. Pre-deceased by his wife, he enjoyed immense pleasure in the company of his many grandchildren. During summer months his sailing interest afforded great pleasure. He will be sadly missed, but well remembered, by all who knew him.

Ray Kilby VK7RK

Ionospheric Update

Evan Jarman VK3ANI*



Solar Activity

Solar activity was mostly at very low levels during the last quarter of 1996. The Ionospheric Prediction Service reported that for 37 contiguous days, in September-October, no spots were observed on the sun. In their words: "This sequence is longer than any during recent solar minima - consistent [with] the current minimum being 'deeper' than those during recent cycles. It is the longest sequence of spotless days for over 50 years."

Activity rose to moderate levels with a class M1 flare at 2044 UTC on 29 November. This was brief with activity returning to very low levels in early December.

The sunspot number in November (18.6) was the highest monthly figure for over a year. The increase was caused by low latitude (old cycle) activity, so cannot be a portent of the new solar cycle. Smoothed sunspot figures continued to decline.

There is a feeling among observers that the minimum between cycles has now passed.

Ionospheric Activity

Ionospheric maximum useable frequencies have generally been depressed during the last quarter. In the latter half of October this has been by up to 30% particularly in the southern regions of Australia. Conditions improved in late November due to the solar flare.

Conditions in December were enhanced for a few days (17-25 December) up to Christmas. While the enhancement did affect all of Australia, it was particularly pronounced in the northern regions. Around Darwin local night time enhancements of up to 50% were observed.

Geomagnetic Activity

There were some disturbances during October. The most significant being on 18-19 and 22-23 October. They were related to a pair of coronal holes. On 4 and 10 December there were two mild disturbances, the latter being stronger.

Conditions were unsettled to active during

both disturbances. For the rest of the quarter conditions were quiet to unsettled.

T index

The Ionospheric Prediction Service revised the T index values in December. The new values have been graphed to allow comparison with previously published data (*Amateur Radio*, November 1996, page 49) which appears as a dotted line on the graph, labelled T (Nov). Solar cycle 23 is now not expected to increase as quickly this year as previously thought. Smoothed sunspot numbers have also been extended to include the last quarter. Any difference between the two indicators is currently so small it is graphically unresolvable.

Upper Decile

The upper decile was added to the HF predictions for the latter half of last year. It is considered to be an upper limit. Above this line, communication is possible but is anticipated to be for less than a tenth of the time.

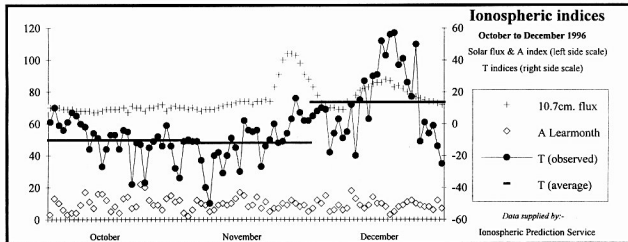
There is a lower decile and it is included in the HF predictions. It has a number of alternative names such as frequency of optimum travail (FoT), or the more common optimum working frequency (OWF).

Internet

The Ionospheric Prediction Service provides a large amount of information for those with access to the World Wide Web. It includes reports, data and explanatory information for those wanting to know more. This year it is intended to expand services provided and this will include a range of real-time HF predictions. They can be found at <http://ips.gov.au/>

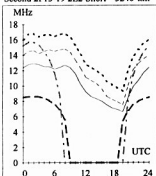
*C/o PO Box 2175, Caulfield Junction VIC 3161

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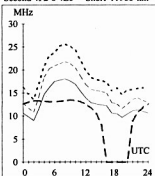


Adelaide-Auckland 104

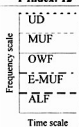
Second 2F13-19 2E2 Short 3240 km

**Brisbane-Harare** 238

Second 4F2-6 4E0 Short 11988 km

**HF Predictions**

Evan Jarman VK3ANI

T Index: 12

These graphs show the predicted diurnal variation in key frequencies for the nominated circuits. They also indicate a possibility of communication (percentage).

The frequencies identified in the legend are:-

Upper Decile (10%)

Maximum Usable Frequency (50%)

E-layer Maximum Usable Frequency

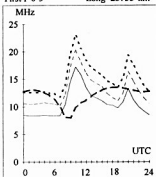
Optimum Working Frequency (90%)

Absorption Limiting Frequency

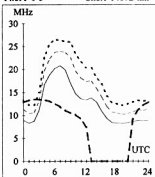
These predictions were made with the Ionospheric Prediction Service Stand Alone Prediction System (ASAPS V3.2). The T index used is shown above the legend. The Australian terminal azimuth, path and propagation mode are also given for each circuit.

Adelaide-London 132

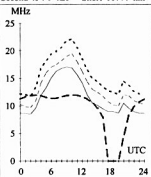
First F 0-5 Long 23755 km

**Brisbane-Moscow** 321

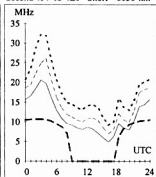
First F 0-5 Short 14072 km

**Canberra-Capetown** 219

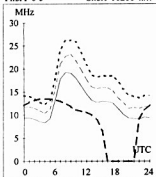
Second 4F4-9 4E0 Short 10777 km

**Darwin-Honolulu** 65

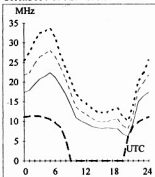
Second 4F7-13 4E0 Short 8636 km

**Adelaide-London** 312

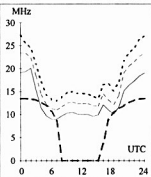
First F 0-5 Short 16268 km

**Brisbane-Tokyo** 348

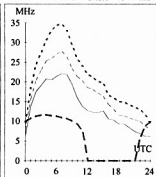
Second 3F6-10 3E0 Short 7159 km

**Canberra-Seattle** 48

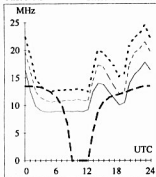
First F 0-5 Short 12709 km

**Darwin-New Delhi** 309

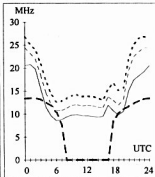
Second 3F5-11 3E0 Short 7347 km

**Adelaide-New York** 67

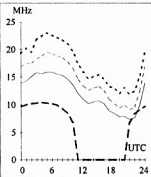
First F 0-5 Short 17092 km

**Brisbane-Vancouver** 43

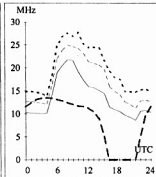
Second 4F2-5 4E0 Short 11864 km

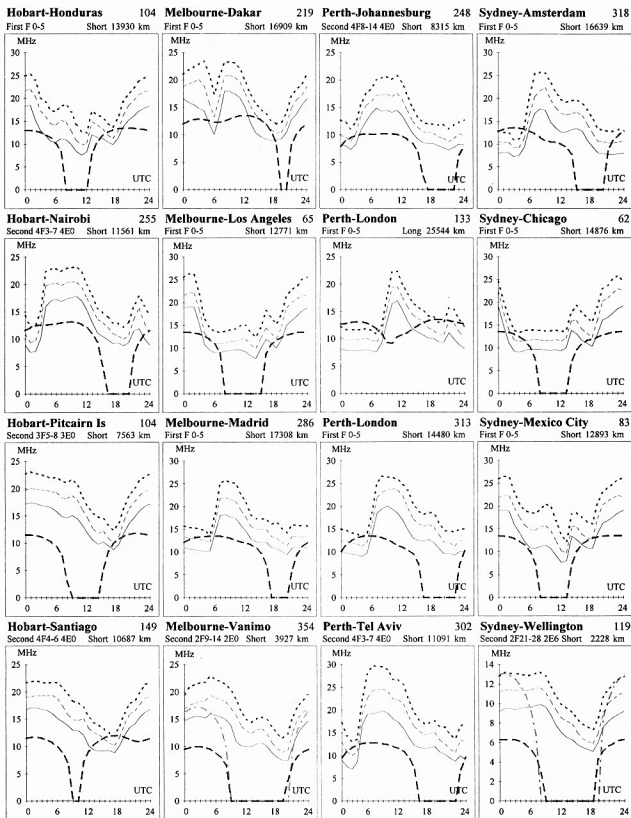
**Canberra-Singapore** 301

Second 3F8-14 3E0 Short 6211 km

**Darwin-Rome** 311

First F 0-5 Short 13264 km





HAMADS

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• **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please... 14 Boany Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth; Haven Electronics, Nowra; and WIA Equipment Supplies, Adelaide.

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Internet address rhg@ozemail.com.au.

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FOR SALE ACT

• **Kenwood TS-120S**, five band HF 100 W txcvr, technical manual, \$450 ONO. Ross Elliott VK1AN 09 581 5696.

FOR SALE NSW

• **Yaesu FT-901MD HF** txcvr, good condn, manual, YD-148 base mic, plus all leads. **Yaesu FV-901MD** external VFO for the above, mint and boxed, includes manual and leads. **Icom IC-2GAT** h/b, with BP-70 battery, antenna, wall charger, manual, mint condn and boxed. Icom accessories, BC-36 desk top charger, AD-12 external power adaptor, HM-46 s/mic, HS-51 headset, 2 of LC-40 carry cases, all in excellent condn. **MFJ dualbander h/b antenna**, half wave, also MFJ-1700B antenna switch, excellent condn. Open to all offers. Consider swapping. Steve VK23S QTHR 02 9999 2933.

• Deceased estate **TH6DXX** beam, wind-up tower, HD rotator, indicator unit, coax, guy wires,

complete working order, buyer remove, \$800 ONO. 02 9949 1195 for inspection, or Bill VK2XT 049 591 586.

• **Kenwood TH2S-A** 2 m h/b, s/n 907347, with case, charger, manual and box, \$225. **Tono MR-1300E** 2 m amp, 120 W with Rx pre-amp, s/n 75488, \$450. Steve VK2KFJ 02 9975 3933 AH.

• **Yaesu FT-101E**, perf condn, modded for 10 MHz, \$400. **Emtron EAT-300A** ATU, \$180. **Realistic HTX100** 10 m amateur txcvr, new in box, \$240. David VK2COF 02 9498 2622.

• Avo and leads, \$75. **Ceramic roller inductor**, \$80. ATU, 3 vac capacitors and roller inductor, ARRL SPC, \$260. **Palomar Noise Bridge**, \$80. 100 W dummy load, \$40. Lyons volt stabiliser, 7 kVA, \$150. HF signal generator, 10-420, LP filter NYE, \$30. R McDonald VK2DTR 02 9918 3835.

• **Icom 761 HF** all band/mode txcvr, general coverage receiver, advanced in-built ATU, VOX operation, voice synthesiser option, all advanced functions and controls, set hardly used, s/n 03148, \$2,200 ONO. Mark VK2KFI 042 724 760 or 0412 424 760.

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• Log periodic antenna, ATN 13-30-9, excellent condn, buyer disassemble, \$500 ONO. VK2ZDER QTHR 02 9687 1477 BH 0412 229 350 AH.

• Tower galvanised 240 mm triangular 2 section and centre tube to 50 ft, requires guys, currently horizontal in storage, \$450. Geoff VK2DPE QTHR 047 536 136.

FOR SALE VIC

• **IC-706**, as new, \$1800. **Nally tower**, dismantled, \$650. **RT80**, suit 2 m packet, \$50. **FM92L**, 70 cm, 25 W o/p, \$250. **Arlec line conditioner**, 500 VA 240 V, \$500. **Amstrad 2286/40** 12 MHz, 40 Mb hard drive, keyboard, mouse, 3.5" floppy, \$100. **CGA monitor**, \$45. **OKI Laserline printer**, 300 DPI, \$250. Harris 2110 fax, Tx OK, Rx print head 95%, \$130. Lee VK3KGJ, 03 9544 7368, 015 810 101.

• **Kenwood TS-930S HF** txcvr, 160-10 m, auto ATU, narrow SSB filtering, Shure 44A mic, users handbook, workshop manual, immaculate as new condition, little used, \$1445. Bill VK3BR QTHR 03 9584 9512.

• **Yaesu FT480R** 2 m all mode, **Mirage linear** with pre-amp, sell or consider swap for Icom 2350 duo-band or similar with extended receive frequencies. Graeme VK3QJ 03 9435 4336.

• **Complete station** includes **TS-520S** txcvr, antenna tuner, two antennas, deluxe mic, coax switch, VSWR meter, connectors plus cable. **Kenwood R1000** receiver, \$600. Stan VK3IS 03 9707 4985.

• **Kenwood TS-520S** complete with crystals for 14.1, 7.2, 3.6 and 1.835 MHz and headphones, instruction manual, s/n 810719. Noel VK3DPB QTHR 03 9306 9231.

• **IC-7C35**, immac condn, mounting bracket, duplicated operating manual \$950. **FDK Multi 750A** 10 W 2 m all mode, original, operating manual, \$300. Stewart VK3PR 018 513 054.

• **Icom IC-3210A** 2 m 70 cm 25 W, including, instruction and service manuals, VGC, \$350. Stewart VK3PR 018 513 054.

• **Yaesu FT-1000**, MD-1 desk mic, SP5 spkr, BPF-1 band pass filter, TCXO-1 temp compensated oscillator, full set of 2.0 kHz, 500 and 250 Hz xtal filters, IRC variable tuning upgrade, 18 months old, less than 20 hours use, absolutely immaculate as new condn in original carton, \$4995 ONO. VK3BR QTHR 03 9584 9512.

• **Icom IC-701 HF** txcvr, 160-10 m, 100 W, desk mic etc, \$400 ONO. Ron VK3OM QTHR 03 5944 3019.

• **Ameritron ALS600** SS linear amp, 600 W, new, unused, boxed, \$2000. Stan VK3SE 053 322 340 evenings.

• Shack clearance, **Pye Bantam** 6 m h/b with VK3RMS repeater, \$50. **Philips UHF 747**, mic and cradle, \$30. **Philips UHF828 W1** with mic and cradle, \$50. 2 of Motorola UHF HT220s h/b, unconverted with chargers, \$60 pair. **Motrola UHF HT90** h/b with VK3RCC and 439 MHz simplex, charger, \$85. **Dick Smith SRM5500** VHF marine txcvr, \$80. **AWA RT85**, converted to 6 m, complete and going with 60 ch, \$140. **Philips FM900**, converted to 70 cm with 84 ch, \$140. 2 of **Rangemaster**, converted to 6 m, both with VK3RMS repeater, one with additional 53.5 MHz simplex, \$50 and \$75. Ian VK3AYK 0418 309 050 anytime.

FOR SALE QLD

• **RF power transistors MRF421**, removed from surplus equipment, 100% checked and guaranteed, factory matched pairs, \$35. Matched quads, \$75. John VK4KK QTHR 07 3269 6647.

• **OSCAR satellite assembly**, two 144-148.8 and two 420-470-14 ATN antennas arranged for either Left Hand or RH circular polarisation, with moulded phasing harness and HD 39 mm fibre glass cross arm. P/N 144-432-44, was \$825 when received 6 months ago from ATN Antennas, original boxes, \$500. Five metre high 900 mm triangular mast, welded and bolted construction, designed for rotator, foundation fittings all ready to drop into the holes for erection and pouring, all new, never used, all my load and stress calculations as well as design/detail drawings, \$300. W Yates VK4WYY 07 3285 1061.

• **Desk mic**, 600 ohm balanced output, add a tone control pre-amp to make a fine station mic, several available, \$20 each. Ron VK4BL QTHR.

• 40 of **Scout Tracker 100 W**, 8 channel txcvrs. For further information contact Barry 077 875 770, fax 077 872 916.

• **Brains & Brawn**, HF+6m+2m+70cm, **FT767/FL7000** 1000w, full Tx, auto-tuners, **FEX767-2670** modules, FAS-14R-newly auto-tuner selector, MD1b8 mic, **FP767P** phone-patch/speaker, **FIF232C** computer i/face, all extra filters, service manuals. **Benchner YA-1** LPE. VGC, see/hear on-air, cost over 10,000, sacrifice the lot \$5,500 ONO (going fishing/mm for a while). Eddie VK4EET 07 3801 3200 AH 07 3403 5703 BH win@tpgi.com.au

• Galvanised tilt-over self-supporting tower, approx 100' high; CDE direction control;

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division Address	Officers	Weekly News Broadcasts	1997 Fees
VK1 ACT Division GPO Box 600 Canberra ACT 2601	President Philip Rayner Secretary John Woolner Treasurer Bernie Kobler	VK1PJ VK1ZAO VK1KIP 3.570 MHz LSB, 146.950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet as radio.amateur.misc newsgroup, and on the VK1 Home Page http://email.nla.gov.au/~cmakin/wiaact.html	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK2 NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124 Phone 02 9689 2417 Freecall 1800 817 644 Fax 02 9633 1525	President Peter Jensen Secretary Eric Fossey Treasurer Eric Van De Weyer (Office hours Mon-Fri 11.00-14.00 Sat 1000-1300 Mon 1900-2100) Web: http://marconi.mpc.mq.edu.au/wia e-mail address: wiansw@sydney.dialix.oz.au	VK2AQJ VK2EFY VK2KUR From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 14.150, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup radio.amateur.misc , and on packet radio.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3 Victorian Division 40G Victory Boulevard Ashburton VIC 3147 Phone 03 9885 9261 Fax 03 9885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3NC VK3BWI broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies 1.840 AM, 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH and VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) \$75.00 (G) (S) \$61.00 (X) \$47.00
VK4 Queensland Division GPO Box 638 Brisbane QLD 4001 Phone 07 964 4714	President Geoff Sanders Secretary John Stevens Treasurer John Presotto e-mail address: wiaq@tmbrts.mhs.oz.au	VK4KEL VK4AFS VK4VX 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) \$74.00 (G) (S) \$61.00 (X) \$46.00
VK5 South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 9352 3428 Fax 08 8264 0463	President Peter Watts Secretary Maurice Hooper Treasurer Charles McEachern Web: http://www.vk5wia.ampr.org/	VK5ZFW VK5EA VK5KDK 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Midura, 146.825 FM Barossa Valley, 146.900 FM South East, 148.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.	(F) \$75.00 (G) (S) \$61.00 (X) \$47.00
VK6 West Australian Division PO Box 10 West Perth WA 6872 Phone 09 351 8873	President Cliff Bastin Secretary Christine Bastin Treasurer Bruce Hodland-Thomas	VK6LZ VK6ZLZ VK6OO 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 53.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busseton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1930 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) \$62.00 (G) (S) \$50.00 (X) \$34.00
VK7 Tasmanian Division 5 Helen Street Newstead TAS 7250 Phone 03 634 42324	President Andrew Dixon Secretary Robin Hanwood Treasurer Terry Ives	VK7GL VK7RH VK7ZTI 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs.	(F) \$74.00 (G) (S) \$60.00 (X) \$46.00
VK8 (Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

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